

Mayor
Melinda Bales

Mayor Pro Tem
Stacy Phillips

Commissioners
Dan Boone
Rob Kidwell
Amber Kovacs
Lance Munger
Derek Partee



Town Manager
Anthony Roberts

Deputy Town Manager
Jackie Huffman

Assistant Town Manager
Bobby Williams

Town Attorney
Emily Sloop

Town Clerk
Janet Pierson

AGENDA
Regular Town Board Meeting
November 6, 2023 - 6:00 PM
TOWN HALL (101 Huntersville-Concord Road)

Live Stream available via YouTube
@townofhuntersvillenc28078

- 1. Pre-meeting - None**
- 2. Call to Order**
- 3. Invocation/ Moment of Silence**
- 4. Pledge of Allegiance**
- 5. Staff Questions**
- 6. Public Comments, Requests, or Presentations**
 - 6.A. Proclamation for Small Business Saturday. *(Mayor Melinda Bales)*
 - 6.B. Proclamation for Epilepsy Awareness Month. *(Mayor Melinda Bales)*
 - 6.C. Proclamation for the Sesquicentennial Anniversary of the Town of Huntersville. *(Mayor Melinda Bales)*
- 7. Agenda Changes/Adoption of Agenda**
- 8. Consent Agenda**
 - 8.A. Approve the minutes of the October 16, 2023 Regular Town Board Meeting. *(Janet Pierson)*
 - 8.B. Approve budget amendment appropriating revenue received from the North Carolina Department of Transportation in the amount of \$3,144,600 for the Main Street project

to the right-of-way expense account (\$1,317,600) and the construction account \$1,827,000). (*Lora Mastrofrancesco*)

- 8.C. Approve budget amendment recognizing revenue in the amount of \$235,374 from Commercial Real Estate Advisors III escrow account for installation of a left-turn lane at the northern end of Northcross Drive. (*Stephen Trott*)
- 8.D. Consider approving a contract to purchase 14 new police vehicles. These vehicles are being purchased with approved FY24 budgetary funds from an approved vendor listed on the NC Department of Administration purchase contract #070A - Vehicles. (*Barry Graham*)
- 8.E. Approve budget amendment appropriating \$98,250 from Parks & Recreation Capital Reserve fund to the North Mecklenburg Park splash pad project for two additional shade structures and to upgrade the concrete pad and add safety surfacing. (*Michael Jaycocks*)
- 8.F. Adopt Resolution to award the bid for the North Mecklenburg Park Splash Pad Project and approve the construction contract. (*Michael Jaycocks*)
- 8.G. Call a public hearing for Tuesday, January 2, 2024, at 6:00 p.m. at Huntersville Town Hall, 101 Huntersville-Concord Road, Huntersville, NC 28078, on Petition #R23-10 Commercial Communication Tower, a request by Berkley Group III, LLC to rezone parcels from Neighborhood Residential district (NR) to Special Purpose - Conditional district (SP-CD) to allow a Commercial Communication Tower. (*Nathan Farber*)
- 8.H. Call a public hearing for Tuesday, January 2, 2024, at 6:30 p.m. at Huntersville Town Hall, 101 Huntersville-Concord Road, Huntersville, NC 28078, on Petition #TA23-06, a request by the Huntersville Planning Department to amend Zoning Ordinance Articles 3, 8 and 11 to comply with House Bill 488. (*Nathan Farber*)
- 8.I. Call a public hearing for Tuesday, January, 2, 2024 at 6:00 p.m. at Huntersville Town Hall, 101 Huntersville-Concord Road, Huntersville, NC 28078, on Petition #TA23-07, a request by the Huntersville Planning Department for a text amendment to the Zoning Ordinance to amend Article 12.2.1 and the definition of "Interconnected". (*Patrick Patterson*)
- 8.J. Accept Street for Town Maintenance in Ardmore at Bryton Subdivision. (*Kevin Fox*)
- 8.K. Accept Street for Town Maintenance located in Barkley Subdivision. (*Kevin Fox*)
- 8.L. Accept Streets for Town Maintenance located in the Norman Park Subdivision. (*Kevin Fox*)
- 8.M. Accept Streets for Town Maintenance located in the Olmstead Subdivision. (*Kevin Fox*)

- 8.N. Accept Streets for Town Maintenance located in Ramseys Glen Subdivision. *(Kevin Fox)*
- 8.O. Accept Streets for Town Maintenance located in Tanners Creek Subdivision. *(Kevin Fox)*
- 8.P. Accept Streets for Town Maintenance located in Vermillion Subdivision. *(Kevin Fox)*
- 8.Q. Accept Streets for Town Maintenance located in Walden Subdivision Phases 3 and 4. *(Kevin Fox)*
- 8.R. Accept Streets for Town Maintenance located in Walden Subdivision Phases 5 and 7. *(Kevin Fox)*

9. Public Hearings

10. Other Business

- 10.A. Consider decision on traffic calming measures for Cambridge Grove Drive between Glencrest Drive and NC 73. *(Lora Mastrofrancesco)*
- 10.B. Consider decision on Petition #R21-08, a request by Strategic Capital Partners for Beltway 77 Industrial Park for a revision to the approved TIA improvements. *(Brian Richards)*
- 10.C. Consider decision on Petition #R23-08, Dearness Gardens, a request by Ken Forster, to rezone six parcels totaling +/- 10.07 acres generally located at 13501 Old Statesville Road from existing Highway Commercial- Conditional District and Neighborhood Residential to Highway Commercial-Conditional District and Neighborhood Residential for boundary and site amendments. *(Jesse James)*

11. Mayor and Commissioner Reports/Closing Comments

12. Adjourn

GENERAL MEETING INFORMATION

Town Board:

The Town of Huntersville Mayor and Board of Commissioners are elected for two-year terms. Huntersville operates under the council-manager form of government, which establishes the Town's policies that are carried out by the Town Manager and staff. For more information visit www.huntersville.org.

Meeting Time, Place and Agenda:

All meetings of the Board are open to the public and the public is invited and encouraged to attend. The Board meets in the Town Hall at 6:00 p.m. on the first and third Monday of each month (unless otherwise posted). Agendas are published Thursdays before the meeting on our website. The Board reserves the right to deviate from the agenda.

Public Comment and Public Hearing Policy:

Persons desiring to address the Board during the public comment period or a public hearing shall sign up via the speaker sign-up sheet prior to the beginning of the meeting. Once the meeting has begun, a person may not sign up to speak. Persons who have signed up to speak shall be allowed to speak for up to three (3) minutes. The Mayor shall have the discretion to shorten the allotted speaking time depending on the number persons registered to speak and in consideration of the length of the agenda. (Public Comment and Public Hearing Policy - Adopted April 19th 2021)

Special Accommodations:

Anyone needing special accommodations when attending this meeting and/or if this information is needed in an alternative format please contact the Town Clerk. The Clerk can be reached by phone or fax: 704-875-6541, email: clerk@huntersville.org or at 101 Huntersville-Concord Rd, Huntersville, NC 28078. We request at least 72-hours' notice prior to the meeting to make the appropriate arrangements.

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Janet Pierson, Town Clerk

Date: November 6, 2023

Subject: Approval of Minutes

EXPLAIN REQUEST:

Consider approving the minutes of the October 16, 2023 Regular Town Board Meeting.

ACTION RECOMMENDED:

Approve Minutes

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

1. Draft Minutes

**TOWN OF HUNTERSVILLE
TOWN BOARD MEETING
MINUTES**

**October 16, 2023
6:00 p.m. – Huntersville Town Hall
101 Huntersville-Concord Road**

PRE-MEETING

The Huntersville Board of Commissioners held a Pre-meeting at Huntersville Town Hall, 101 Huntersville-Concord Road, at 5:15 p.m. on October 16, 2023.

GOVERNING BODY MEMBERS PRESENT: Mayor Melinda Bales; Commissioners Dan Boone, Rob Kidwell, Amber Kovacs, Lance Munger, Derek Partee and Stacy Phillips.

Mayor Bales called the Pre-meeting to order.

Mayor's Affordable Housing Task Force Presentation. Justin Ckezepis and Michelle Hoverson presented report from the Mayor's Affordable Housing Task Force. *PowerPoint Presentation attached hereto as Exhibit No. 1.*

**REGULAR MEETING
TOWN OF HUNTERSVILLE
BOARD OF COMMISSIONERS**

The Regular Meeting of the Huntersville Board of Commissioners was held at the Huntersville Town Hall, 101 Huntersville-Concord Road, at 6:00 p.m. on October 16, 2023.

GOVERNING BODY MEMBERS PRESENT: Mayor Melinda Bales; Commissioners Dan Boone, Rob Kidwell, Amber Kovacs, Lance Munger, Derek Partee and Stacy Phillips.

Mayor Bales called the meeting to order.

Mayor Bales called for a moment of silence.

Mayor Bales led the Pledge of Allegiance.

STAFF QUESTIONS

Commissioner Boone requested update on I-77 lane closures at Gilead Road.

Ethan Smith, Public Information Officer, noted all northbound lanes on I-77 will close at Exit 23 at Gilead Road from 10:30 p.m. to 5:00 a.m. tonight, Tuesday night and Wednesday night of this week.

Mayor Bales said Ms. Sloop, a resident had reached out to me over the weekend asking if I was being sued and I wanted to make sure that folks understood the condemnation process.

Emily Sloop, Town Attorney, said as the Mayor of the Town of Huntersville, you are unable to derive a direct benefit, meaning income from a contract with the Town, so that's why we cannot purchase your property outright, rather we have to go through the condemnation procedures because of the fact that there's an exception to the statute against direct benefits of contracts with the Town when you have a consent order or a judgment from the court regarding condemnation.

Anthony Roberts, Town Manager, said that's related to a road project that we have going on in front of your house.

Ms. Sloop said correct, and so it's litigation, but you have not been sued by the Town in the traditional sense.

Mayor Bales said thank you. I just wanted to make sure that was clarified and corrected on the record.

PUBLIC COMMENTS, REQUESTS, OR PRESENTATIONS

National Arts & Humanities Month Proclamation. Mayor Bales presented Proclamation proclaiming October as "National Arts and Humanities Month."

A Proclamation for National Arts and Humanities Month

WHEREAS, the month of October has annually been recognized as National Arts and Humanities Month by thousands of arts and culture organizations – including the Arts & Science Council, the local arts agency of the Town of Huntersville and Mecklenburg County – and by communities, counties, and states across the country for nearly 30 years; and

WHEREAS, the arts and humanities help community members explore their diverse history and culture with the support and creativity of large, midsize, and small cultural organizations, creative individuals, educational institutions, and local businesses; and

WHEREAS, despite significant losses to the coronavirus pandemic, the creative industries remain among the most vital sectors of the American economy - providing new opportunities for development, and creating jobs and economic activity across sectors; and

WHEREAS, the collective nonprofit arts industry of the Town of Huntersville, surrounding towns, Mecklenburg County and Charlotte strengthens our local economy by generating \$243 million in total economic activity annually, \$21.6 million in state and local government revenue, and by supporting the full-time equivalent of 7,600 jobs; and

WHEREAS, the arts and humanities embody so much of the accumulated wisdom, intellect, and imagination of humankind, and play a unique role in the lives of our families and our community.

NOW, THEREFORE, I, Melinda Bales, Mayor of Huntersville, do hereby proclaim October "**NATIONAL ARTS AND HUMANITIES MONTH**" in Huntersville, North Carolina.

IN WITNESS WHEREOF, I do hereby set my hand and cause the Seal of the Town to be affixed, this the 16 of October, 2023.

Mount Olive Missionary Baptist Church. Mayor Bales presented proclamation congratulating Mount Olive Missionary Baptist Church on their 155th Anniversary.

A Proclamation for Mount Olive Missionary Baptist Church

Whereas, October 22, 2023 marks the 155th Anniversary of Mount Olive Missionary Baptist Church, which was founded in 1868; and

WHEREAS, it was formed by an ex-slave Reverend Alex Anderson whose burning desire led to the formation of the Mount Olive Baptist Church; and

WHEREAS, Reverend Alexander began his work of building a brush arbor to house Mount Olive's first members and now, 155 years later, the church continues his mission in a beautiful building and flourishing congregants; and

WHEREAS, Mount Olive Missionary Baptist Church continues to flourish in its vision to "reach, teach and minister to the hurts and needs of seekers, preparing them to be believers and workers for Christ"; and

WHEREAS, it is a pleasure to extend this expression of our esteem and best wishes to the members of this congregation on the memorable occasion of this Anniversary.

Now, Therefore, by virtue of the authority vested in me as Mayor of the Town of Huntersville, I do hereby deem it an honor to extend congratulations to Mount Olive Missionary Baptist Church on their 155th Anniversary.

In Witness Whereof, I do hereby set my hand and cause the Seal of the Town to be affixed, this the 16th of October, 2023.

Recognition of Jack Simoneau. Brian Richards, Assistant Planning Director, to say that Jack Simoneau means something to the Town of Huntersville is an understatement. For the last 22 years Jack has headed up the Planning Department here. Many ups and downs, pluses and minuses, given everybody's various political season that it is, everybody's viewpoint is different, but I can tell you this, Jack has been a tremendous leader for us. He's led us through three comprehensive plans, more than ten small area plans, over 150 rezoning petitions, numerous text amendments because he couldn't count that many this afternoon and well over 105 residential and mixed-use subdivisions, hundreds of thousands of square feet of commercial and industrial space. To say that he has left his footprint here is again an understatement and I cannot say enough. He's been a wonderful mentor, a wonderful person to work for and I've really enjoyed the last 20 years of serving on his team and I've got some big shoes to fill. It's an honor and I want to call you my friend and can't say much more than that.

Jack Simoneau, Planning Director, said for the record, it was 22 years, 2 months and 16 hours that I started. I just want to say thank you. This has been the best job I've ever had. I appreciate working with all the boards that I have worked with, and I mean every one of them. The Town staff has been fantastic, the management has been fantastic. The Planning staff is just fabulous. Brian Richards is walking in.....he's already running the department to be honest with you and you are in great hands, so again thank you for everything, I appreciate it. Wonderful job - I'll never forget Huntersville. I'm going to stay here for the rest of my life.

AGENDA CHANGES

Commissioner Munger said I'd like to move Item 10.F from Other Business to Item 8.D on the Consent Agenda.

Mayor Bales said are there any other agenda changes? Is there a motion to adopt the agenda, as amended?

Commissioner Phillips made a motion to adopt the agenda, as amended. Commissioner Munger seconded motion. Motion carried unanimously.

Mayor Bales said is there a motion to adopt the agenda?

Commissioner Phillips made a motion to adopt the agenda. Commissioner Kovacs seconded motion. Motion carried unanimously.

Mayor Bales said you're right, I did miss it, because I got ahead of myself. Poor Jack, just after 12 years of learning from him, just got me a little emotional and I try not to be. We are going to move back and go back to Public Comments. The first person who has signed up to speak is Charles Guignard.

Charles Guignard, 201 Sherwood Drive, said excuse me Madam Mayor, you're not the only one excited about Jack's retirement, but saddened about Jack's retirement and excited about Brian taking over that position. I believe I was the only elected official that was a part of that interview process and we all

agreed that evening that Jack Simoneau could do a good job and over 22 years and however many hours that it's increasing, he has served well. I was fortunate to be sitting as Mayor Pro Tem and commissioner at this dais for 8 of those 22 years and oh my gosh as a citizen, as a business owner, as a property owner, he worked with everybody equally, diligently and understandingly, to the best of his abilities, so thank you Jack. Number two, I see on your agenda this evening a joint use thing with Lake Norman Charter School. What emotions that brings to me. I remember fighting Charlotte-Mecklenburg School System for 19 months to get them to agree to take a check from this town for \$500,000 for the Huntersville Elementary School gym, the first joint use thing that they did with a small town and I'm excited to say that I am the one that made the motion for Lake Norman Charter to exist, so bring them on Michael, just keep doing those good things. Third, before I forget it, Anthony, the wonderful Charlotte Water system has agreed to replace a sewer line right out yonder that they say doesn't exist and I am not drunk. There's a sewer line out there from manhole to manhole that Charlotte Water said doesn't exist, but they've agreed to replace that one day next week. As soon as they tell me, I promise you you'll be the second phone call. I won't tell you who the first is. Most importantly, before I run totally out of time, former mayor, former commissioner, former mayor pro tem and most importantly for this sentence or two, chairperson of the Downtown Study Committee, whatever we were officially called, the last thing I am going to do in this town is speak for Sarah McAulay. For anyone in here that knows her, that ain't a good thing to do. But she told me she's away with a family situation in Raleigh dealing with a sister that she is trying to assist. She will be very disappointed if the Golden Cow passes tonight. From her perspective if the Golden Cow passes, that opens up all of the downtown study that was done, all of it, including having taller buildings than is presented in the Downtown Study. I personally would agree in general.....

Mayor Bales said Mr. Guignard, your time is finished.

Mr. Guignard said and I will thank you and appreciate what you have done. Again, Jack, we will miss you greatly. Thank you.

Elaine Kerns, 301 Hillcrest Drive, said I respectfully disagree with Mr. Guignard. As a member of the Downtown Planning Steering Committee, I urge you to approve the Golden Cow project. It is exactly what we had in mind when we developed the plan. It's a unique small business with character, it provides a great place for people to gather, it's 100 percent commercial which we very much need, and as a bonus the applicants are local and unless I'm mistaken they appear to be great neighbors.....they would be great neighbors. Let's look at some of the reasons why some of you might be opposed to this. It's not a two-story building. It meets the height requirement of a two-story building, it just doesn't have a second story on the inside. However, it will provide space for two to three additional businesses, which again we greatly need. Regarding the height, it blends in beautifully with the older one-story homes that border it, and it adheres to the step-down intensity provision in the plan. It doesn't fit the 2040 Plan. With the exception of a few needed modifications, staff says that it does, and they support the plan. Please keep in mind that the Planning Board unanimously voted for the plan. Will there be enough parking? I believe they are providing parking, however if that's not enough there is a big, beautiful parking deck right across the street with lots of spaces. I think we want people to park and walk around downtown. It will compete with another ice cream shop in downtown. Well, hopefully they will both thrive, but isn't that the nature of competition. Does that mean we should only have one shop, one restaurant, one bar. May the best man win if it comes down to that. More competition is good for our town. This would be the first new all commercial construction built in downtown since 1999. That was 24 years ago, and before that the last commercial building was built in 1972, 51 years ago. I don't think businesses are knocking on the door to build downtown and we do not want to have the reputation as being business unfriendly in this area. This new building and new business will draw

other businesses downtown. I urge you to vote yes and allow the process of breathing new life into our downtown to begin. It only makes sense to approve this.

Joe Hewitt, 16106 Henry Lane, said what I am here to do is express concerns about the Highway 73 widening project. It's very ambitious and we've looked at multiple sets of plans. We're not sure what the exact latest set of plans are, but we have some serious concerns about how the residents of Henry Lane and Cramur Lane are going to be able to leave their neighborhoods and go east on 73. That's my first concern. There is a reworked proposal for the Beatties Ford/73 interchange that addresses some issues, but it certainly doesn't address the issues associated with our neighborhoods. My second set of concerns have to do with the increased traffic on Beatties Ford Road headed north toward 73. As a matter of fact, I picked up my nephew from Hopewell this afternoon and the line extended back past the church, and it took us 15 minutes to come through the intersection and it wasn't an especially busy day. The reworked plans do not seem to address increasing the through put of the Beatties Ford traffic onto 73, so that's my second major concern. My third major concern has to do not only with the residents of Henry and Cramur, but also Sunset and Terry, and that is our ability to access the shopping area around the Harris Teeter. Once we head east on 73, we can get to the Harris Teeter, but it's very difficult for us to get back home and most of us when we go out shopping have multiple errands to run. The last stop is going to the grocery store, Harris Teeter in this case, and once there there's no way coming west on 73 to conveniently access the Harris Teeter. Those are my primary concerns. I do want to say that I am enthusiastic about the project because it does seem to include sidewalks that extend from Blythe Landing up toward Southlake, which is great. We just need to keep those in the budget, and I'll yield my time.

Dan Fogel, 16100 Henry Lane, said I want to thank you for your work. I don't get a chance to say that enough and I really appreciate what you do. I know the staff is concerned. I've talked with them about this project. It's ditto what Joe said plus I'm worried about emergency vehicles. There's no real way if this project, either plan goes through, for emergency vehicles to efficiently get into the neighborhoods. I'm getting a little long in the tooth and I'm concerned a lot about emergency vehicles having access to my house at least and I know to others as well. I think it's a really important issue to consider about how they're actually going to get in there and get out at the same time. Another thing is, there is a solution I think that you could consider. It's going to cost a little bit of money but right there Brian Hines owns property across from the gas station there. That property has a road already. It's his private property, but if you were to purchase that then we could come out at least to Henry Lane that would solve the problem, take a right and go to the light and actually it would be the safest way to get out of the subdivision that way. We wouldn't have to go all the way around and keep making turns. That would be an efficient way go left with the light, so consider if you could, if it could be in the budget is to purchase that land in the front – just that parcel. You don't have to purchase the whole thing, just that road parcel so that we can take a right and go around. I think one thing that I'm very concerned about is our property values. As you go through this, I'd hope you would consider how people are going to respond to this type of traffic flow and what it's going to do to our property values, so those are my major concerns in addition to what Joe mentioned.

John Fuller, 11626 Old Statesville Road, said I'm here on behalf on Don Dancy in regard to the Dearness Gardens project. I had previously communicated with I believe it was Brian that this was likely going to be continued on until the next hearing in November, but I did want to go ahead and put our concerns on the record as Mr. Dancy who is the property owner resides at 502 South Main Street. His property does stand to be affected by this. I want to first start out with in general Mr. Dancy does support the proposal and supports the rezoning, but as the site plan that is looking to be approved as part of the rezoning shows there is going to be a buffer zone that's actually placed on his property. I believe the

parties are looking to find a way to work around that which is why we would be requesting that this be continued until November, but that is something that he cannot support placing it on his property when in reality it would need to be placed on the Dearness Gardens property instead of his. The other thing that Mr. Dancy wanted to note was specifically as in regard to the buffer zone between the two properties, the site plan that was originally proposed back in June when he signed off on the original rezoning application, did not indicate that there was anything that was going to be placed on his property and that site plan has significantly changed to the point where now we are talking about 30, 35 trees down a strip of his property that would essentially render the rear of the property unusable for him. In short, we ask that this be pushed until November so the parties can work together to resolve this. He generally supports the project but just wishes to make his concerns out there on the record.

Julia Rogers, 14820 Beatties Ford Road, said thank you for allowing me to come speak here. Primarily as a life-long resident of Huntersville and one of the co-owners of one of the last remaining century farms in the area my primary concern is the proposed EPCON development just right up the road from us. I feel primarily there's been a lack of transparency in the communication for the people directly impacted to that. There's been a sign put there, but as was stated at the last meeting, there....more than just a sign put up. We haven't received a flyer or any sort of concrete information about that. I was able to hear some of the footage from the last meeting. EPCON gave a really good showing of their residents. I would have been more interested in hearing the neighbors of their neighborhoods and how they feel about their projects. But that being said, Beatties Ford Road is heavily trafficked. As a gentleman mentioned earlier, twice a day traffic backs up to our farm from that location. You will definitely sit sometimes 15 to 20 minutes just to get half a mile down the road to the gas station, which is very frustrating when you live in that area and you are trapped. Furthermore, my concern is that this plan really doesn't correlate with not only our future plans, the 2030 and 2040 Plan, but also the plans of Mecklenburg County, they're stated objectives for preserving the last remaining green spaces in the area as they recently passed the Farm Preservation Plan and they have stated that's their primary goal to preserve what's left of our soil and water quality, which is going to be heavily impacted by increased development. I just don't feel that this development is in correlation with the plans for Mecklenburg County and really the goals of the Town of Huntersville. Finally, it's just disappointing as small business owners, we were in communication with the Town of Huntersville to potentially put a store on our property and we were told that the biggest factor in that was that Beatties Ford Road is designated a historical road and thus any development would require rezoning which I know there's proposed rezoning, but to me if you designate something as an historical road it should be kept that way and more development is not in keeping with the historical nature of Beatties Ford Road, it's against it.

Ashley Wiley, said can I write the address down, I don't feel comfortable giving that, if that's okay with you. First of all, I want to tell you all thank you. As we go into early voting here soon and hopefully going into voting we can all just do things kindly and civilly. On that note, I kind of want to bring you to Section 2 of the Huntersville Code of Ethics where it states that "Members should act with integrity and independence from improper influence as they exercise the duties of their offices. Characteristics and behaviors consistent with this standard include: Adhering firmly to a code of sound ethical value; behaving with respect towards everyone with whom they interact; exhibiting trustworthiness; best judgment; remaining incorruptible, self-governing and unaffected by improper influence while at the same time being able to consider the opinion and ideas of others." And then it goes into "treating members of the public with respect and honoring the opinions of others even when there are differences of opinion." That last one is what I want to bring the most attention to as there has been a huge rift in our town. It's truly not fair what's happened and honestly, I shouldn't be afraid to give you my address. I mean obviously you have it, but I shouldn't be worried about saying it. I shouldn't also be worried about being told that I would have to face consequences for speaking out against the

commissioner and being threatened with my appointment. That's not okay. Everybody has the right to free speech, even as an elected official you do not give up your right to the freedom of speech. Non-discrimination and non-retaliation mean exactly that. You don't discriminate and you don't retaliate. If you have a difference of opinion, please just go to that person. Stop trying to look for something that's not there. And at the end of the day, you are who everyone looks up to. It's just that simple. You're who my children look up to. Just do things the right way. Stop with the rift. It's gone too far. And honestly, I don't know how some people can still sit up here and want to run for mayor when their campaign manager threatens me for using my voice.

CONSENT AGENDA

Approval of Minutes. Commissioner Phillips made a motion to approve the minutes of the October 2, 2023 Regular Town Board Meeting. Commissioner Kidwell seconded motion. Motion carried unanimously.

Updated Fee Schedule. The only change is to the wording in Erosion Control Plans. The fee is now chosen by the Applicant for either acres disturbed or the number of single-family lots developed.

Commissioner Phillips made a motion to approve updated Fee Schedule to comply with House Bill 488. Commissioner Kidwell seconded motion. Motion carried unanimously.

Updated Fee Schedule attached hereto as Exhibit No. 2.

Resolution – Seagle-4th Street Improvements Construction Contract. Commissioner Phillips made a motion to adopt Resolution to award the Seagle-4th Street Improvements Construction Contract to Efficient Developments. Commissioner Kidwell seconded motion. Motion carried unanimously.

Resolution attached hereto as Exhibit No. 3.

Lake Norman Charter School Joint Use Gym Agreement. The Lake Norman Charter School is planning the construction of a new elementary school on McIlwaine Road just to the west of Fire Station No. 4. The Town currently has joint use agreements with the Lake Norman Charter School at their existing elementary school, middle school and high school. Currently, those agreements will expire in July of 2039. This new agreement will add the new elementary school gym for 15 years and extend the other three gyms by an additional two years each. The new elementary school is anticipated to be open by August of 2026. The Town would make a one-time payment of \$500,000 for this new agreement once the school is opened.

The Parks & Recreation Commission unanimously made a recommendation at their September meeting to approve this agreement. The 2030 Huntersville Parks & Recreation Master Plan calls for an additional 44,000 sq. ft. of indoor recreation space by 2030. This project will include over 10,000 sq. ft. of indoor gym space.

Commissioner Phillips made a motion to approve the Lake Norman Charter School Joint Use Gym Agreement. Commissioner Kidwell seconded motion. Motion carried unanimously.

Joint Use Agreement attached hereto as Exhibit No. 4.

PUBLIC HEARINGS

None

OTHER BUSINESS

Beatties Ford Road/Brown Mill Road. Commissioner Phillips requested to be recused from Item 10.A.

Commissioner Munger made a motion to recuse Commissioner Phillips. Commissioner Boone seconded motion.

Commissioner Kidwell said could you clarify your recusal, please.

Commissioner Phillips said my parents own property in that vicinity that will be impacted potentially.

Mayor Bales called for the vote to recuse Commissioner Phillips.

Motion carried unanimously.

Brett Canipe, Division 10 Engineer with NCDOT, said thanks again for having us. We've been to the council a few times recently and as we will cover here in the presentation, we visited with the Town and had several public hearings a few years ago now to talk about the NC 73 project that's west of the town. With that, I will go ahead and get started. *PowerPoint presentation attached hereto as Exhibit No. 5.*

What we are here to talk about tonight is sort of a recap. We have a slide that will show what we've kind of accomplished over the last couple of years, but really we're here to focus in on one particular area. That's the Beatties Ford Road and Brown Mill Road intersection and also as we consider options for that intersection, just north of there, Beatties Ford Road and NC 73 also would be impacted by decisions we make.

NCDOT is coming to ask the Town council to provide their preferred alternative over two options that we've kind of narrowed things down to and I can show everyone that with a project map here just in a minute and then tell you about another public meeting we are going to have because it's been a while since we've been out there to the public.

This project, NC 73 widening from more or less West Catawba Avenue to just past Beatties Ford Road, has been around in our State Transportation Improvement Program for a number of years now. We began working on the project back in 2018. That work progressed through environmental studies, a lot of things there. I won't read everything on the screen, on up until the 2021 timeframe we were able to restart the project after a delay that most of our projects experienced across the state during some financial struggles we went through.

We've been coordinating with other Town projects like the Gilead Road intersection project and a lot of other developments or proposed developments along the corridor, so we've been engaging with everyone.....came back to the town, met with everyone, reviewed some alternatives because there were some concerns over the design and where we are right now is we are in the right-of-way phase of this project, so our designs realistically were complete, but we went back to the drawing board in a few locations at the request of the Town trying to make some tweaks that would hopefully suit everyone just a little bit better. But again we're trying to buy right-of-way right now as we speak, so many of you, if you live in that area, you may receive letters if you own property in that area.

Back in February we were asked specifically to reevaluate the Beatties Ford Road and Brown Mill intersection to look for some other alternatives that might help with traffic flow and help ease some concerns. We worked on that through the spring and summer of this year and came up with these design options that I'll walk through with you here just in a minute. And then met with the Town council folks just to go over the details of the design so that they could truly understand what we were proposing because sometimes if you look at a set of even concept drawings for a highway project, it's hard to kind of pick out what's going on, but I commend y'all for your interest and glad we were able to come to a conclusion on most of the design concepts.

This is what we had as a previous design at the intersection of Beatties Ford Road and NC 73. This was before we had a request to reconsider the design, so you will notice on the north side of NC 73 there, the northern leg of Beatties Ford Road was shown to be offset from the main intersection and also there was some concerns on this lower part of the page about the concept that we were proposing at Brown Mill and Beatties Ford itself. We did move into an alternative for the Brown Mill intersection or we considered two alternatives there. In the previous design it was harder to see, but we were proposing to limit through movements or left-turns.....the previous design had a little bit more limitation on the movements that were allowed here, so we were always proposing a left-turn out of the westbound leg of Brown Mill Road and that's actually the left-turn movement for NC 73 traveling westbound to go south on Beatties Ford. We are proposing to now include a left-turn that would take you to the north out of Brown Mill up towards NC 73 on Beatties Ford, so that's what we are calling Alternative 1. I will tell you from a traffic operations standpoint, I believe that's probably the superior option. There's a lot of details and a lot smarter people than me in the traffic engineering world that could explain that, but I don't know that anybody wants to hear it tonight. We can see the other alternative on the next screen and that would be to allow a through movement on the westbound approach of Brown Mill across Beatties Ford Road, but because of the way the signal has to be phased, that means timed, in relation to the Beatties Ford and 73 intersection which is just to the north and you've heard tonight from at least a couple of people about the challenges that we are dealing with there at that intersection. This would be Alternative 2 that we've come up with and presented to the Town. Again, the other option is NCDOT's preferred alternative at this point, but again this is one of the critical decision points that we're at right now that we'll be asking the Town to weigh in on.

If you look at the larger picture you can see this would be a picture of Alternative 1 where you can turn left out. You'll notice that we had proposed earlier as I described the northern leg of Beatties Ford Road would have been offset here. We brought that back into the main intersection at the request of the Town. In order to achieve that there was a u-turn bulb that was proposed right here, but unfortunately that would conflict with this left-turn movement, so we had to remove that in this version of the design.

I'll just go ahead and try to get maybe some of the comments I heard. The Henry Lane folks, for example, were concerned about being able to travel back to the east. The way you would have to do that is to go through the intersection, go here and make a u-turn at this location, and if you imagine any four-lane divided highway, which that's what NC 73 would be, that's what's in our Transportation Plan and has been for a long time. Alternatively, you may have been able to make a u-turn here with this being a divided highway. In this case because of the design of this intersection to facilitate the very heavy left-turn movements on Beatties Ford, you're unable to accommodate that movement here. As with everything, our designs are a balance between everyone's needs – between the folks using the corridor or the folks living on the corridor, sometimes that's the same people.

We've got a public meeting scheduled for November 14 at Lake Norman Baptist Church. There's two different timeframes. If anyone would like to come out, we're happy to cover in much greater detail and we'll have the whole project team there. Some of them are here with me tonight that could help answer some detailed questions but certainly could cover it more there.

Just a quick note on the cost of the project. Right now we're looking at getting really close to the \$80 million mark for this one single leg of the NC 73 project and if anyone was here for the last visit and we covered cost, I'll tell you that cost has gone up dramatically since that last time we were here and everyone is familiar with what's been happening with inflation in our economy and it's definitely affecting the horizontal construction market as well, probably even at a greater rate than most every other market, so just a very large investment that we're all making here. We all are making this investment as taxpayers but just wanted to represent to you guys what's being invested in this one leg of 73. I think that's it. I can take any questions. We can cover, you know if you guys want to look back at any of the designs or however you guys want to handle it from here, but happy to take questions.

Mayor Bales said let's open it up for the Board members to ask questions.

Commissioner Partee said just real quick, the diagrams that I have in my agenda packet.....I mean your presentation was much more simplistic than what I have here. How can I match up the Alternative 1, 2 and 3 compared to engineering diagrams that I have in my packet.

Mr. Canipe said it's a risk to show one version, but there's a little more detail in that design that you are looking at there. It's the same thing. It's based on the same line work, so if you have a specific question about any of those turning movements or anything like that we can cover it. We can also get you hard copies of those design concepts we went over in the agenda packet if that would help you. We'll get those out.

Commissioner Munger said thank you for the presentation. I just want to kind of put it in simplistic terms as I understand it. Alternative 1 allows a left-turn if you are going eastbound on Brown Mill, whereas Alternative 2 does not.

Mr. Canipe said that's correct. Alternative 2 allows a straight through movement if you are westbound on Brown Mill.

Commissioner Munger said so Alternative 1 allows no straight through.

Mr. Canipe said correct.

Commissioner Munger said I just want to make sure I understand the fundamentals of the difference.

Mayor Bales said so Alternative 1, you cannot go straight through west, which means you would have to.....east or west or both.

Mr. Canipe said both. In Alternative 1 you would have left-turns coming from both sides of Brown Mill and then Alternative 2 you would have left-turns on the westbound approach because that is the left-turn serving into 73 traffic that wants to go south on Beatties Ford Road. You would also be allowed to go straight through across Beatties Ford Road at the same time that those left-turns would be made.

Commissioner Kidwell said a couple of things. I don't know if your maps can.....can you show like if you're cutting off access to go east on Brown Mill to go straight across so the individuals there would have to go down to 73 and basically take a left out of their property if they are on the south side.....take a left, go down to 73 and then head east. Do you have another map in here that kind.....

Mr. Canipe said do we have hard copies, by chance. Would that help if y'all had that in front of you. I apologize for maybe not having that.

Commissioner Kidwell said so where the Phillips' farm is, if you live on the Phillips' farm side and you've got to go east on 73, you've got to take a left out of their property, go down to 73 if you want to go east, and then take a right. Correct?

Mr. Canipe said I was still trying to flip to the right one. If you're on this side under Alternative 1 and you want to go straight across here, is that your question?

Commissioner Kidwell said no. Alternative 1 does not allow you to go to cross.

Mr. Canipe said Alternative 1 would allow you to turn left, you're correct, from that leg. You could go north on Beatties Ford, then make a right on 73 to head east.

Commissioner Kidwell said what the map doesn't show us here is how it shows a small portion of Beatties Ford Road. What it's not showing us is how Beatties Ford.....what you guys are doing from Brown Mill to Gilead, and I think that's the bigger.....this is kind of you've got to look at both of those sections, and coming from where we're doing some improvements as a town at Gilead to turn right and putting in a lane, we're actually narrowing it down in front of the Fire Department and then widening back out because there's two gas lines, a 42" and a 36" gas line, so we can make all the improvements here. You heard some folks from over at Henry Lane talk and there's probably another 2,000 or 3,000 people that come down that lane. It's still going to be an issue with traffic because we're going from two to one to two. We're doing this accordion effect and it's going to impact.

Mr. Canipe said there's no doubt it would be a better deal overall if we could carry that lane all the way through. It's those gas lines and we talked about that a little bit more last time and that's a very significant undertaking to extend that lane because of the way you have to handle those gas lines and I know you know a little bit about that.

Commissioner Kidwell said I understand that and I appreciate that, but I also know NCDOT wants to move traffic and vehicles as safely and as quickly as possible and if we're not going to extend those lanes down, we're not going to be moving them as quickly as possible and I question the safety as well because we're still going down to one lane.

Mr. Canipe said I would say this about the design. The efficiency of the design, particularly the way those northbound left movements to get on 73 are being handled with the two left turning lanes feeding into two lanes on NC 73, that's going to make a very big difference. You're going to process a lot more traffic. And there's detailed information of the modeling that would tell you just how much we are saying we would improve. Really you are talking about where you are stacking cars, right. You're either going to stack cars in two lanes or stack cars in one lane, but because we're able to move into the intersection much more efficiently, there's less cars there waiting because there's more cars that got through the previous cycle.

Commissioner Kidwell said potentially, you are still stacking them up single lane. You're still doing this accordion effect which in my years up here and listening to individuals who've built roads like yourself, traffic calming device is what they call it. It's a natural calming device. It's slowing traffic down, so it's not moving it. But all in all I look at this, I think Alternative 1 seems like it's a better option than just a right-in/right-out for Brown Mill.

Mr. Canipe said I agree.

Mayor Bales said is that the option that NCDOT is recommending?

Mr. Canipe said yes.

Commissioner Boone said two questions. The stone monument that's at Beatties Ford and Brown Mill, will that be moved?

Mr. Canipe said I've got some of the project team members here. I think we're missing that, is that correct? We have to move it out, so we would relocate that. It's very tight through there.

Commissioner Boone said what's the best of all three alternates here, the best to move traffic off of Beatties Ford Road?

Mr. Canipe said I believe that this is the best all-around alternative.....Alternative 1. It provides more mobility and that was some of the concern we had before, mobility in this particular area and that's how we came up with this new concept and there's always a give and take. If you choose one path, that's going to have impacts in some other area of the project. Like I mentioned, we had to do away with that u-turn bulb that was here to facilitate the northern leg realignment, which again it does improve some mobility for some folks.

Commissioner Kovacs said with Alternate 1 if you want to go to Denver and you live on the Phillips' farm, you are going west.....or no, Alternate 1 you would be able to turn left onto Beatties Ford still, correct.

Mr. Canipe said that's correct.

Commissioner Kovacs said so then they could go across and go left. Alternate 2 they would have to go west to get onto 73 to go to east to turn around to go back west to go to Denver.

Mr. Canipe said I think you said that correctly. Again, more mobility, another reason I thought it was a better option.

Mayor Bales said is there a consensus, is there a motion?

Commissioner Munger made a motion to move forward with Alternative 1 for the Beatties Ford at Brown Mill intersection for NC 73 R-5721B Project.

Commissioner Kidwell seconded motion.

Commissioner Kidwell said I know it's a cost undertaking, but I really think we should just take some money from the Cornelius project and put it in the Huntersville project for the gas lines. They raised

their taxes, so they're fine. I've said it before and I'll go on record, I am glad we are moving forward with this portion. I'm not a fan of this project. Going up to Hickory it might work where there's not development. We've got development on both sides. We've got retail throughout this and it's going to be a long.....what are we going to be on 6 years.

Mr. Canipe said before we're done? Potentially.

Commissioner Kidwell said if you say potentially, so a long 8 years of construction.

Mayor Bales called for the vote to support Alternative 1.

Motion carried unanimously.

Mr. Roberts said is there any opportunity as we're working on the intersection improvements of the Town project, separate from this but they tie together, to possibly relook at what Commissioner Kidwell said?

Mr. Canipe said I was thinking about that. We have coordinated to date, so our plans connect and tie and all those things from an engineering standpoint, so if you want to increase the scope and consider taking that lane across the gas lines, there may be some other funding sources that we could talk to the MPO about potentially from discretionary funds that would require.....those are federal funds that would require a 20 percent match. There may be some way for us to blend forces. We are always willing to try to do that. I'll remind everyone, though, that we are in that right-of-way phase, so we'd prefer to go to a property owner one time. That might take going two times because I would hope that everyone agrees we don't want to slow down anymore than the time that we've already lost dealing with this. We're going to look at it, for sure.

Mr. Roberts said what I would say is continue moving down the path you're going, but if you are willing to consider what Commissioner Kidwell brought up with the project we have going on, maybe we can get our teams together to sort of relook at that.

Commissioner Kovacs said you had asked one of your coworkers about maps. If you do have any, could we have some. We have some residents that reached out that don't have access to a computer and they kind of wanted to see how it was going to affect them – this portion and as a whole.

Mr. Canipe said I can follow-up with one of y'all about the number of maps.

Mayor Bales said just work with Mr. Roberts and then he will get it to us.

Mayor Bales said is there a motion to bring Commissioner Phillips back?

Commissioner Munger made a motion to bring Commissioner Phillips back.

Commissioner Kovacs seconded motion.

Motion carried unanimously.

Petition #R23-07, EPCON – Beatties Ford Road. Petition #R23-07, EPCON – Beatties Ford Road, is a request by EPCON Communities Carolinas, LLC to rezone six parcels totaling 78.7-acres generally located

at 15201 Beatties Ford Road (South of NC 73 and east of Gilead Road and Beatties Ford Road intersection) from existing Rural to Transitional Residential - Conditional District zoning district for a 118-lot, single-family home subdivision.

Commissioner Phillips requested to be recused because my parents are adjoining landowners.

Commissioner Boone made a motion to recuse Commissioner Phillips.

Commissioner Munger seconded motion.

Commissioner Boone said I would like to make a full disclosure statement that the landowner in this application has donated to every one of my campaigns, but it will not affect my decision.

David Peete, Principal Planner, entered the Staff Report into the record. *Staff Report and Staff PowerPoint attached hereto as Exhibit No. 6.*

This is the continued item from last month. The public hearing was held in due course. There are no changes from the package last month. The item, as you remember, is 78.7 acres currently zoned Rural. The request is to rezone it to a Transitional Residential Conditional District, which would be an age restricted project of 118 units at 1-1/2 units an acre and they would have just above 40 percent open space.

Just to give you a quick update since the Planning Board. This was leading into the meeting a month ago. You can see the items in red there. Essentially the modifications that were requested, “a” is supported by staff’s recommendation, which is the removal of an entry median requirement.

The second one is “b” and that is to increase the driveway width for each individual unit. That is not supported by the staff’s recommendation.

Modification “c” is for a cul-de-sac length extension due to a utility easement crossing. That is supported by staff.

Modification “d” is that there is a buffer disturbance allowed. In other words, they would hold an outer amount undisturbed and an inner amount disturbed and replanted. However, they have modified that and they are no longer asking for that modification, so you don’t have to worry about “d”.

And “e” involves the allowance of a wet pond. That’s a very technical item. Our ordinance allows it if you do the wet pond in a specific way or that you prove certain things that you can do that, and staff is accepting to recommend that wet pond with the provision that they provide those elements that are required.

You can see the next item under “e” was that needed to provide at least parking on one side of the streets where the lots are of a certain dimension and they have done that, so that is no longer needed as well.

All the outstanding redlines would need to be addressed and they’ve expressed that they will do that as well and then there was a recommendation to add a walking trail through the facility and they are looking to do that as well.

Jumping back to the very beginning, just the recommendation from staff was that the request to rezone from R to TR-CD was not supported by the 2040 Community Plan or the Beatties Ford Road Corridor Plan, which we can elaborate on if you would like.

The motion from the Planning Board was to recommend approval. It was by a 6 to 2 vote. I will not belabor the entirety of the motion unless you would like me to, but it is there. In the red just highlights some of the very specific elements in their motion. The vote, you can see the stipulations that they had there, starting with enumeration 1 to remove the median per staff, to increase the length of the cul-de-sac per staff, to allow the wet pond with the qualifying measures. They did not support or rather they were not in agreement with staff. They were looking to allow the driveway increase in width and they were supportive of the disturbance of the buffer, but again, it's a non-issue.

Any questions of the Planning Board motion or the recommendation or the request itself for tonight's consideration?

Mayor Bales said is there a motion?

Commissioner Kidwell said I have a motion, but I'd like to ask a question of Mr. Peete first. In our policies, and it always bugs me when we have a resident saying they weren't alerted or people weren't alerted. What is our policy in making sure that, besides the signs, but letters getting out to individuals.

Mr. Peete said we post the property with a physical sign on any public right-of-way. Unfortunately, due to the odd shape of this property, it only has that small frontage on Beatties Ford Road. Nothing to the rear has been constructed yet through the second phase of Riverdale. We do mailings to every property owner adjacent or within 250' by first class mailing from the county Register of Deeds official address list or property ownership. We also post an ad in the paper, which is the Charlotte Observer, and we post on our website. We have a full project page with everything that's been submitted thus far. So those are our requirements for our CD rezonings.

Commissioner Kidwell said this Board, we've only got a little over a month before the election, or less than a month before the election. I think the next board if we've got candidates sitting out there, think about how we can reevaluate that and change that.

Commissioner Kidwell made a motion in consideration of Petition R23-07, EPCON – Beatties Ford Road, a request by EPCON Communities Carolinas LLC to rezone six parcels totaling 78.7 acres generally located at 15201 Beatties Ford Road (south of NC 73 and east of Gilead Road and Beatties Ford Road intersection) from existing Rural to Transitional Residential – Conditional District zoning district for a 118 lot single-family home 55 and older age restricted subdivision, the Town Board recommends approval. The Town Board finds that it is consistent with the Huntersville 2040 Community Plan Policy LU-1: Encourage a development pattern that follows the Future Land Use Map in that the development is located both within and adjacent to the Beatties Ford Road/NC 73 Mixed-use Activity Center and provides a key residential component of support for said activity center. This recommendation is consistent with and supported by Huntersville 2040 Plan Policies LU-2, LU-2.1, LU-2.2, LU-6, LU-6.1, LU-9, LU-9.1, LU-9.2, LU-10, LU-10.1, LU-10.2, LU-10.4, LU-12, LU-12.2, LU-12.3, EOS-2, EOS-2.1, EOS-2.2, EOS-3, EOS-6, EOS-6.1, EOS-10, EOS-10.1, T-3. The amendment is further supported by the Beatties Ford Road Corridor Small Area Plan which identified a NC 73 Mixed-use Center at the intersection of Beatties Ford, Gilead and NC 73. The Town Board further recommends that the following modifications be approved: (1) remove the requirement for a landscaped median at the Beatties Ford Road subdivision entrance; (2) increase the maximum road length of the road 10 cul-de-sac by 470' not to exceed 820';

(3) allow a wet pond in lieu of traditional water quality measures. This approval is contingent upon the applicant working with Town staff to identify and apply acceptable techniques to meet the intent of the Water Quality Ordinance. In addition, the recommendation for approval is contingent upon: (1) that this community will be a 55 and over age restricted community; (2) within the proposed Courtyards of Walters Farm development, EPCON agrees to reserve three lots to be used as owner-occupied, affordable housing for an affordable housing program if the Town of Huntersville establishes an affordable housing program within three years from the approval date of this rezoning request. If a program as described above exists within three years of the approval date of R23-07, homes on the lots will be built by EPCON and sold for zero profit on the purchase of the home, without upgraded features, and these lots will remain within the future Huntersville affordable housing program. If a program is not established within three years of the approval date of R23-07, the lots will revert to EPCON to sell as market rate housing. All redline staff comments must be addressed. All that being said, it is reasonable and in the public interest to approve the rezoning request R23-07.

Commissioner Munger seconded motion.

Mayor Bales said now we are going to open it up for discussion and I would imagine we would want to hear from the applicant. In regards to that motion, what I heard was three lots set aside for affordable housing. After three years if Huntersville does not establish an affordable housing program, they would revert back to market value. Are you willing to.....

Applicant's Representative said yes, we are willing to do that.

Mayor Bales said any additional questions at this point for the applicant.

Commissioner Boone said I noticed the county has purchased the property north of this. Does anybody know what the county's plans are. I read something, but I just want to hear if it's true.

Mr. Roberts said the property to the north is under contract by the county, if you are talking about the farm itself, but they have not closed on it as of yet.

Commissioner Kovacs said is this supermajority?

Emily Sloop, Town Attorney, said it's three out of five, she's recused. If she had been absent and not recused, it would have been four out of six.

Commissioner Partee said I'm not going to support this motion and I'm not supporting it under the following 2040 Plan LU policies: LU-1, LU-1.1, LU-3.1, which is very important because LU-3.1 discourages rezoning in the higher intensity residential districts in the Residential Edge and Rural Conservation future land use character areas. There is consistent pressure to rezone to higher density districts on the edges of town. Growth management was the #1 priority for survey responses. There's a need to be a concerted effort to uphold previous policy decisions to limit density and increase open space preservation in the more developed areas outside the Town Core. And Policy 7 and Policy LU-11. I was on the 2040 policy development of the 2040 Plan and I live on Beatties Ford Road and I can attest to the traffic that is there, but I just think that we need to preserve the east and the west lower density areas, so therefore I will not be supporting this motion.

Commissioner Munger said I just want to commend Commissioner Kidwell for doing the legwork on this. One of the things that I had originally wanted to see here was some affordable housing. I did nothing

towards that end. Commissioner Kidwell did absolutely everything. He worked with the applicant, he worked with staff, he worked with our attorney to get the language around this and to get three affordable housing lots. We had a presentation earlier tonight about affordable housing. This couldn't be more appropriate at this time to try and get this to happen. I, too, was against this initially, but the idea was so that we could get some affordable housing because especially amongst our older community, hopefully I'm not using a term that offends anyone, I'm almost there, it's especially difficult because they can be on fixed incomes and this makes it just that much easier for them to be able to live in a place and thrive in a community that is serving people like them. To me where it's bordering it fits so well because you will have some older people working next to a farm area community that they won't really be in conflict with each other. They are going to be in really good harmony and one of the things that we always talk about is traffic. As we know, as you get into the older years, you drive less, so this won't contribute as much to the traffic situation, as I believe staff will tell you a TIA was not recommended for this because of the type of residents that will be living there. This is a wonderful thing. I just wanted to acknowledge Commissioner Kidwell – thank you so much. You really took this and ran with it. I will be supporting this, and I appreciate all the work.

Commissioner Kovacs said my soul is on fire right now. This project, while it does not fit the 2040 Plan or the Small Area Plan, one of my concerns and as you pointed out Commissioner Munger, affordable housing, I'm so thankful that you guys are doing that. It brings me so much joy. I think you are paving the way for developers to continue to do things like that. We need it and that is part of why I'm in turmoil, because in my opinion this project itself does not fit there. While we did just discuss affordable housing, we also just discussed right after that the traffic. And we talked about this exact same area and the effects of traffic and then we are going to turn around put housing there and I would like to avoid adding more traffic. I know that we did not require a TIA because it is 55 and up and I may be alone on this belief, but I don't believe that the amount of traffic that will be added is that insignificant as Commissioner Munger. I'm not picking on you, but you just spoke. As you just pointed out, you are almost there and I see you driving around, so it will be an impact on the roads. Now it's not going to be as much of an impact as say if I were to live there and taking my kids to and from school, but to be toted as something that's not going to impact the roads is not quite factual in my opinion. I thank you more than I can possibly say, Commissioner Kidwell, for the work for affordable housing and if this does pass, I will thank you again for us having that in our bank of affordable housing and attainable housing for our residents and to the developer, but I'm not able to support this.

Commissioner Kidwell said just a point of clarification, while the Town did not require a TIA, the NCDOT did and one was done.

Mayor Bales called for the vote to approve Petition #R23-07, EPCON – Beatties Ford Road.

Motion carried 3 to 2 – Commissioners Boone, Kidwell and Munger in favor; Commissioners Kovacs and Partee opposed.

Commissioner Boone made a motion to bring Commissioner Phillips back.

Commissioner Kidwell seconded motion.

Motion carried unanimously.

Petition #R23-08 – Dearness Gardens. Petition #R23-08, Dearness Gardens, is a request by Ken Forster, to rezone six parcels totaling +/- 10.07 acres generally located at 13501 Old Statesville Road from

existing Highway Commercial – Conditional District and Neighborhood Residential to Highway Commercial – Conditional District and Neighborhood Residential for boundary and site amendments.

Commissioner Boone made a motion to continue Petition #R23-08, Dearness Gardens, to November 6, 2023, at 6:00 p.m. at Town Hall, 101 Huntersville-Concord Road.

Commissioner Phillips seconded motion.

Motion carried unanimously.

Petition #R23-09 – Golden Cow. Petition #R23-09, Golden Cow, is a request by H2H Holdings, LLC to rezone approximately 0.6 acres at 14516 S. Old Statesville Road from Town Center to Town Center – Conditional District for a one-story retail building.

Jesse James, Senior Planner, entered the Staff Report into the record. *Staff Report and Staff PowerPoint attached hereto as Exhibit No. 7.*

This is 23-09, Golden Cow, for a conditional district rezoning that is Town Center to Town Center – Conditional District.

There are three modification requests. Kind of the main one, why we're here, is the requirement of a two-story building. The applicants have offered a one-story building with additional height on the building at 25'. They meet the minimum parking requirements for 11 spaces. They're offering 12 spaces. There is a modification request to reduce the 10' required buffer on the southern portion of the property to 5' with shrubs instead of trees. There is a modification request to have the dumpster located on the back portion of the property against residential properties. The ordinance requires dumpsters be internal to the site.

I won't go over this entire Planning Board recommendation, but it was an 8-0 unanimous approval for the rezoning, and same with the staff recommendation. The Planning Board did recommend all three modifications be approved. Staff does recommend approval with all three modification requests approved.

Commissioner Munger made a motion in considering the proposed Rezoning Application #R23-09, Golden Cow, the Town Board recommends approval based on the plan being consistent with the Huntersville 2040 Community Plan Policies DT-2, DT-6, DT-6.1, LU-8.1, LU-8.2 and with the 2022 Downtown Plan Organizing Principles of Mobility, Gathering and Soul. While this plan does not propose an occupiable second story, it does offer creative design indicative of a traditional downtown site and an active and welcoming frontage for gathering, a store front height of a two-story building at 25'. Conditions for approval are: (1) modification to allow a one-story proposal; (2) modification to allow the applicant to locate the dumpster adjacent to the southern property lines in the best practical location for garbage and recycling pick-up; (3) modification to allow a 5' buffer for planting area screening for the proposed parking lot with evergreen shrubs and no trees. It is reasonable and in the public interest to approve the rezoning plan because the rezoning is.....my apologies, because the site is small and not being developed with the adjacent properties. It will bring several small businesses to downtown. This business blends with the surrounding development and enhances the visual interest and walkability of downtown Huntersville.

Commissioner Partee seconded motion.

Commissioner Kidwell said I'm not going to support this tonight and contrary to some people, it's not because there's another ice cream shop in town. I rarely get over this way for ice cream when there's so many other options on the other side of 77, but the committee as a whole supported the Downtown Plan and some of them may have had different viewpoints on that and that's fine. I think three businesses going into this building, and it's three businesses going into this building, is going to require what the Zoning Ordinance asks for. Also, I heard someone say that it's going to be a great place to gather. I remember the owners up here saying they don't want people to gather. They want them to get their ice cream and move on. Get your goods and go, and they said that up here. The brewery is a great place to gather. They put out picnic tables, they want you to stay, but down there they don't. I don't know what the other two businesses are going to look like being in there and how they are going to manage the parking. That's up to them. The other thing is, this is a tough one for some of my fellow Board members and some candidates to think about because if you read the agenda packet it's supported by the 2040 Plan and it's not supported by the 2040 Plan. That's just you've got to weigh your options. That's why the 2040 Plan is a guide. I fully laud Commissioner Munger's willingness to approve this in utilizing parts of the 2040 Plan to do so.

Commissioner Kovacs said I think kind of off of what Commissioner Kidwell just said. This is proof why the 2040 Plan is not a solid fall back and I think that we need to look at there's some pros, some cons. The Downtown Steering Committee, the number one thing they want is to get people to invest in downtown, and this is our first investor since the 90's. While I really wish they would have come and followed our ordinances and been two stories and I've been adamant about that since the beginning, I am very thankful and welcoming to you all to come to Huntersville and I see this as being an asset.

Mayor Bales called for the vote to approve Petition #R23-09, Golden Cow.

Motion carried 4 to 2 – Commissioners Boone, Kovacs, Munger and Partee in favor; Commissioners Kidwell and Phillips opposed.

Petition #TA23-05. Petition #TA23-05 is a request by the Town of Huntersville Planning Department to amend Article 9.51 of the Zoning Ordinance to further clarify non-residential outdoor activities allowed within the Neighborhood Residential zoning district within ¼ mile of the Town Center zoning district.

Brian Richards, Assistant Planning Director, entered the Staff Report into the record. *Staff Report attached hereto as Exhibit No. 8.*

As the Mayor mentioned, this is just a quick clean-up for some clarification on language which allows for outdoor activities on a front porch in the Neighborhood Residential zoning district when the properties are within ¼ mile of the Town Center district.

This was supported by both the Huntersville Ordinance Advisory Board and the Planning Board.

Commissioner Partee made a motion in considering the proposed amendment #TA23-05, the Town Board recommends approval to amend Article 9.51 based on consistency with EV-2.2 of the Huntersville 2040 Community Plan. It is reasonable and in the public interest to amend the Zoning Ordinance because it will provide further clarification to the language.

Commissioner Kovacs seconded motion.

Commissioner Kovacs said I was just going to say thank you to the Planning staff and HOAB for taking out the ambiguity of this because I know I actually had talked to you about it and not understanding.....we have a lot of this and I hope that we continue to tighten down on our ordinances and change it so that way it's very black and white and we don't have that gray area, so I just wanted to say thank you.

Commissioner Kidwell said the HOAB, that was a 6 to 2 vote, correct?

Mr. Richards said correct.

Commissioner Boone in the Town Center zoning it's ¼ mile measurement and that measurement starts at what point?

Mr. Richards said at the edge of the Town Center zoning district, which typically are property lines or center lines of roads. As you can see here, it's the dark red. I believe we discussed earlier if properties were to rezone from Neighborhood Center to a different district to Town Center, that ¼ mile would adjust.

Commissioner Boone said so that general area could grow?

Mr. Richards said it could.

Commissioner Kovacs said when Town Center project got approved it furthered.

Mr. Richards said it did. Next door to Huntersville Town Center, North State?

Commissioner Kovacs said yes.

Mr. Richards said no, it was done previously when that was under ownership group because that was rezoned to a Town Center – Conditional District that had no.....nothing inside of it, so they had to rezone, so it did not change the boundary but it did change that.....

Commissioner Kovacs said so the property two, three houses down from that changed then it.....

Mr. Richards said just for clarification these uses are only along major and minor thoroughfares, so not the back streets.

Mayor Bales called for the vote to approve Petition #TA23-05.

Motion carried unanimously.

Budget Amendment – HFFA. Zach Brown, Executive Director of Huntersville Family Fitness & Aquatics, said this is certainly not something that was anticipated but this is in response to the HVAC and ductwork replacement for the 50-meter pool air system at HFFA. Upon awarding of the bid, the contractor came in and did some more review of the selected supporting items to get that system replaced and upon doing that review they found that there was going to be some unique challenges which required them to present a change order. This is the difference in the amount of the change order and the amount that was officially selected for budget for this project and so this is just something for consideration for approval so that they can continue on with the fabric duct replacement.

Commissioner Boone made a motion to approve the appropriation of fund balance and capital expense in the amount of \$53,500 related to a change order for the air filtration system at HFFA. The additional cost is for the replacement of supply ductwork to fabric ductwork and additional scaffolding needed to complete the project.

Commissioner Phillips seconded motion.

Mayor Bales called for the vote to approve the budget amendment.

Motion carried unanimously.

Resolution – Amend CIP and Apply for CRTPO Discretionary Grant. Heather Maloney, Transportation Planner, said I'm here to request an amendment to our CIP to fund a greenway bridge over NC 73. You guys talked about this project earlier with the widening of 73. Here we have a picture of the plan at the intersection of Lindholm Drive and 73. If you are familiar, we have a development project coming in on the south side, the Birkdale Golf Club retail development and just to orient you guys, this project will put a greenway extension on the south side of 73 and on the north side you see the existing McDowell Creek Greenway. *PowerPoint Presentation attached hereto as Exhibit No. 9.*

As the project is planned now, this greenway will require pedestrians to walk down 73 along the planned multi-use path, cross Lindholm, continue down 73, cross again and then backtrack 170', cross again, cross the future Lindholm Drive Extension and then carry on on the greenway that's being built as part of that project.

What we are worried about here is that people may take the decision into their own hands and look for a shorter crossing, shorter than the 650' that we are requiring now and the four traffic signals that they will have to wait through. We wouldn't want them to cross the 120' directly. Instead, we are proposing and have worked with NCDOT and Mecklenburg County Greenways to develop a plan for a bridge over 73 that will save people from crossing at grade.

We are here tonight to ask you for an amendment to allow us to match a grant request to Charlotte Regional Transportation Planning Organization (CRTPO) of \$3.1 million. Our match would be in the ballpark of \$2 million covering the \$5.1 million dollar cost of the project.

CRTPO, their Discretionary Grant Program, has a cap for each project of \$3.1 million, so that top line falls under that minimum.

This bridge design falls in line with the Safe Systems Approach to transportation planning, which is the direction that all USDOT departments of transportation are moving in and there are six principles to that, starting with death and serious injuries are unacceptable. If you are familiar with the Vision Zero initiative to eliminate death and serious injuries on our roadways, the Safe System Approach recognizes that as its first principle.

Second and third are that humans make mistakes and humans are vulnerable. Humans will inevitably make choices that put themselves at risk and lead to crashes, but the transportation system can be designed to account for those errors and to avoid the types of injuries that result.

The last three tenants are the responsibility is shared, shared amongst all of us, all levels of government and the public. Safety is proactive. We have to get ahead of this and design in order to make our roadway and transportation system safer and redundancy is crucial.

In conclusion, we need to design roadway environments to mitigate human mistakes, account for injury tolerances, to encourage safer behaviors and to facilitate safe travel by the most vulnerable users, those being our walkers, our bicyclists, elderly and younger people that don't or can't drive and all those in between.

This is a view of our growing greenway network. In green you see the existing greenways. In blue you see those that are under construction. Orange represents those that are funded and in design and to be built in the next 3 to 5 years and then a sidewalk connection showing there up on Birkdale Commons Parkway. You can see in the next few years we have nearly built out a system where you can connect downtown Huntersville to Birkdale with two tunnels at 77 and US 21 that the Board so graciously helped us apply for funding last cycle and then there's a tunnel being built under Gilead Road on the west side and this bridge up there at the top will complete that entire network of greenways requiring only four at-grade crossings in quiet streets like Sherwood Drive, Commerce Center Drive, Rosewood Meadows and Bradford Hill Lane.

I'm here asking you guys to help us support making Huntersville the most livable community in North Carolina following the mobility principles outlined in our 2040 Community Plan to promote multi-modal connectivity to Activity Centers through on-street improvements, strategic sidewalk projects and the continued construction of the greenway network.

Commissioner Kidwell said how many people cross 73 now. Do we have a traffic count for people crossing?

Ms. Maloney said we do not have a traffic count for pedestrians. We do not keep track of pedestrian counts. NC 73 presents a significant barrier, so people don't usually cross where crossings are not provided. People also don't drive where roadways are not provided.

Commissioner Kidwell said there's a crossing there right now, isn't there?

Ms. Maloney said not at Lindholm.

Commissioner Kidwell said the bridge.....bike friendly?

Ms. Maloney said yes, it would be a multi-modal path.

Commissioner Kidwell said and handicapped accessible?

Ms. Maloney said ADA accessible. We worked with NCDOT's designers to make sure that it's ADA compliant.

Commissioner Kidwell said this is a question for Jackie Huffman. The \$2 million.....does that stay in our account until this is approved by.....if this gets approved at CRTPO or do we have to pony up the money now?

Ms. Maloney said we do not.

Commissioner Kidwell said we heard tonight that we're four to six years out from 73.

Ms. Maloney said this is currently in right-of-way. If we are able to get it funded, this will be incorporated into that right-of-way acquisition and then incorporated into the design and construction.

Commissioner Kidwell said I thought it would be during the construction phase, correct. This will be done....if approved then we get the funding from CRTPO, this would be in conjunction with.

Ms. Maloney said yes, similar to the 21 tunnel, it will be incorporated into that project.

Commissioner Munger said just a quick follow-up on the \$2 million number and Anthony you might want to jump in here. The intent is not for the Town to pay that full \$2 million. We are seeking additional funding from the county, is that correct? And our number would actually end up being somewhere in the neighborhood possibly below half a million.

Anthony Roberts, Town Manager, said that is the goal, yes. I've had some conversations with the county manager and she is supportive of the project, so we will be working out details in the coming weeks on that, so stay tuned.

Mayor Bales said I know we had a lot of conversation about the tunnel and we looked originally at other options other than a bridge. Would you mind elaborating just so that folks hear all the work that we've done to get to this point.

Ms. Maloney said we approached NCDOT as you know I think in February or March to revisit a crossing and we discussed a tunnel that was evaluated many years ago and we asked them to revisit that, the feasibility of that, and to also look at a bridge option. They came back with an updated cost estimate for the tunnel and then two different bridge options. The tunnel was going to cost something in order of \$5.2 million. The two bridges were going to be \$3.2 million and \$4.4 million. We started with the \$3.2 million design and then have tweaked it and then it has run up \$5.1 million with the required inflation and contingency fees, so the base cost estimate of the bridge without those was about \$4 million.

Mayor Bales said but we weeded out the tunnel because of the lift of the roadway.

Ms. Maloney said there was significant feasibility issues in terms of constructability. They would have to close down 77 which would cause some headaches and they'd also have to lift the road significantly to fit the tunnel underneath which would have impacts to Exit 25 and the continuation of the widening project to the west to get the levels back down.

Mayor Bales said I just want to thank you for all the work that you've done along with the rest of staff in working with NCDOT. This was a crossing for me that I feel very strongly about because of the safety factor. The fact that we came back and NCDOT was able to find a solution to this, I'm certainly grateful for that and Commissioner Munger I would agree with you that we don't want to bear the burden of the entire match all on our own. It is a county greenway and hopefully they will be, as they always have been, an excellent partner on this funding.

Commissioner Boone said one last question, this is the final piece, this seven miles of greenway?

Ms. Maloney said for the connection from Birkdale to downtown? Yeah.

Commissioner Munger made a motion to adopt a Resolution to amend the Capital Improvement Program (CIP) and apply for the Charlotte Regional Transportation Planning Organization (CRTPO) funding for the NC 73 Greenway Bridge Project that will be located over NC 73, just east of the intersection of NC 73 and Lindholm Drive.

Commissioner Phillips seconded motion.

Commissioner Kidwell said while I would have preferred to put the money towards a splash pad at Waymer, or towards the 77,000' of sidewalks that we have on our list, or a greenway from Pottstown to Walmart for that community, I'm going to support this tonight. I will have to say I find it ironic that we find ways to shorten the path to get people on the greenways, so we took out 650' of walking so they are going to have to make up for that by walking even further in Birkdale holding a cappuccino and then coming back across the street to eat at the Firebirds.

Mayor Bales called for the vote to adopt Resolution.

Motion carried unanimously.

Budget Amendment – Firefighter Positions. Jackie Huffman, Deputy Town Manager, said staff and when I say staff, I mean the staff of the Town and staff of the Fire Department, have been talking about how we might integrate talking about how we might fill some vacancies at the Fire Department. There are numerous shifts that are not filled and there is a concern about being able to respond to calls and therefore we included the majority of the slides you will see tonight in the packet so I'm not going to read all of these to you, but I do want to hit a few highlights. *PowerPoint Presentation attached hereto as Exhibit No. 10.*

Chief Dotoli of our Fire Department suggested at our January workshop that there was a need to hire full-time positions and so in January of this year he brought this to our attention. At that workshop, the Mayor requested that our two public safety representatives of the Board, Commissioner Partee and Commissioner Boone, meet with Commissioner Kovacs and we discussed what we might do about moving forward. We met before the budget process and spoke with many agencies who are also going down this path that perhaps have a blend of full and part-time staff who perhaps have a blend of non-profit inc. employees and municipal employees and we spoke to insurance representatives, and we spoke to the League of Municipalities including the League's recommended consultant on fire studies.

At the time, the Board considered incurring the cost of an external study to have the external consultant look at what we might do to fill positions and the decision was made at the time that rather than pay the external consultant, that staff would continue to research options. After the budget was adopted, Town staff and the Fire Department staff continued to meet and explore options. We felt like we had enough information. We reconvened that fire study group of Boone, Kovacs and Partee in September and those Board members decided at the time we should move forward with bringing a proposal to the full Board and that's what you have in the packet tonight.

Why are we considering full-time firefighters? The part-time staff of the non-profit inc. monthly gives their availability to the Chief to work shifts. We will have slides that will detail for you how many shifts we have every day. There are numerous shifts that are not being filled, so we don't have the staff that we believe is ideal on a truck and therefore we are exploring the option of having full-time staff. Full-time staff, generally speaking, work a set schedule. That's doesn't mean they work every Tuesday and

every Wednesday or every Tuesday and every Friday. That means not unlike our patrol in the Police Department there is a schedule that they work on a day/off a day so on and so forth. We would not pick we are just going to work our 18 staffers that we're talking about here on the busy holidays, but if we had a certain number of staff to fill positions, there would be fewer positions that we would need part-time staff to fill. We, the Town, does not have the data about how vacant the shifts are. That is housed at the Fire Department, and so I'm going to ask the Chief to talk a little bit about vacancies that has caused this to come to light.

Chief Jim Dotoli said every day there's 18 firefighters on duty spread out between the four stations and six apparatus. What we ran into, a lot the shortages now are that the county invested about a million dollars in each of the county fire departments to make sure there were four people on duty every day, seven days a week. The City of Charlotte experienced a lot of downfall also, so when the city is short and people like myself could work for the city, we could bring home \$1,000 to \$1,200 by working overtime down there, so a lot of their time of saying hey come work for us, that's where a lot of people went. Concord did that, the City of Charlotte did that – they just bring back their own people and they get their own people on those fire trucks, which then creates shortages on us. At that time, you know I came to you in 2021 with a proposal. In 2022 I didn't want to cry wolf. In 2023 is when you heard it at the winter retreat that we really needed some people.

Ms. Huffman said I'm guilty of loving the numbers, right. If you can make \$75 an hour on an overtime shift for your full-time employer or you can make \$20 an hour for your part-time employer, what are you going to do. It's just a numbers game. This slide will tell you even offering overtime on some major holidays and offering overtime when we don't have more than two people on a truck, we're spending \$400,000 a year in overtime at the non-profit inc. level.

There is a lot of data on this slide. I want to pick out a couple of the bullet points that resonate with me. We attempt to staff six trucks every single day with those 18 people that we just talked about. That very bottom bullet point, we don't have the six trucks staffed on the weekends or after 7 p.m. all 365 days a year, so it is during the day as you will see this the third from the bottom bullet point, the second truck has three firefighters 43 percent of the time, so not quite half of the time, Monday through Thursday, do we have staff on the second truck at Station 4. We only have the second truck staffed at Station 4 12 percent of the time during the day on Fridays. It's not that we have a particular affection for Stations 1 and 4. We have predictability regarding where our calls are coming from which is how we picked which two stations should have the second trucks added. There's one truck at Station 2 and one truck at Station 3 24/7/365 and when the Chief sends out his who would like to work shifts at these stations this month, if he doesn't get a minimum of three people at Stations 2 and 3, then he pulls people from 1 or 4, and so he doesn't have enough people to staff that second truck at 1 and 4 if he's got to pull people from 1 and 4 to staff 2 and 3. This is the entire reason for the request of the budget amendment. It would be logical for us to stop right here and see if there's any questions about the vacancies.

Commissioner Kidwell said how does this \$1.12 million break-out per person? Is someone getting more, less, how's that going to work?

Ms. Huffman said your rates of pay, will you speak to him about what firefighters make.

Chief Dotoli said last year you approved a pay rate for firefighters, a \$2 pay rate.....\$17.75 is what the firefighters make, \$19.75 is what the drivers make, and the captains make \$2 more than that which is at \$21.75. We put together all three of those and obviously there's a median.....about \$19.75 is the median. We took \$19.75 times 24 hours times the 18 people and it came to about \$600,000 and we

said let's take that \$600,000 out of the Fire Department's budget and just use it for the full-time pay and then there's the benefit.

Commissioner Kidwell said so \$1.12 million is including benefits in this?

Ms. Huffman said yes.

Chief Dotoli said and a \$200,000 grant.

Ms. Huffman said we've got a slide on the particular numbers.

Commissioner Kidwell said this is a budget amendment for this year, but what is the tax implications of going full-time?

Ms. Huffman said I would say if the cost associated with the 19 firefighters which is the Chief and the 18 positions is \$1.1 million for half a year, I would say it's \$2.2 million for a full year. I'm sure that estimate will change slightly when we get FY25's health insurance and insurance numbers for workers' comp and such, but that's a ballpark number.

Commissioner Kidwell said so 2 to 3 cents to start.

Ms. Huffman said if a penny generates a \$1.5 million, then I would say it's a penny and a half for a full year. One more slide before we get off vacancies and move on to my favorite part, the numbers. If we have 18 shifts on any random day 365 days a year, we've tried to make this simple. I hope it worked. Who wants to choose to work on the holidays, right, so on Thanksgiving we were six people short. That means we had 12 people at the four stations. Christmas Day we were seven people short, and you can see the list here. Some of the different holidays we were less short. But even at offering double-time we struggled to fill positions.

Commissioner Kovacs said how much are we spending on overtime right now?

Ms. Huffman said \$400,000 a year. When I say we, we're making an annual contribution to the non-profit inc. and the non-profit inc. is spending \$400,000 a year in overtime.

Commissioner Kovacs said when you figured out the total of what it's going to cost us to add full-time employees, did you already take into account we wouldn't be paying \$400,000 in overtime?

Chief Dotoli said you still would, because those trucks are not manned, so we're still manning the other trucks with that overtime. This is the two trucks that we cannot man and we're just basically taking the money that you gave us and bringing it back to the Town to use it for full-time.

Ms. Huffman said the only benefits that the non-profit inc. pay today are social security/Medicare which is federally mandated and they pay gap insurance. For a lay person this is what gap insurance is. If the line share of the non-profit inc.'s employees are full-time firefighters of Charlotte or Concord or another agency and they are working part-time hours for us, if they get injured working a fire for the Town of Huntersville, workers' comp will restore the portion of their salary associated with where the injury occurred. That does nothing for them for their full-time employment which is their bread and butter for their families and so the gap insurance compensates them at a rate that will help reimburse some of those full-time employee expenses. Town employee.....full-time Town employees, Police Department

employees, Town Hall employees, Seagle, Town Center employees have retirement and 401K. We have paid holidays, sick, vacation accruals and health insurance.

The budget amendment you have before you tonight is to reimburse half of a year of 19 employees, so six firefighters, six engineers, six captains and the chief's salary. The chief would set a consistent rotating schedule, so that's not a I'm going to randomly select which of 30 days in a month I want you to work. It will be a routine schedule, not unlike a schedule that we set in patrol and police. The chief would manage all of the staff and a highlighted reason why you are being asked to consider this tonight in October is it takes a period of time for local government to hire an employee, so we hold the ad out public so that people will know that we are hiring for a period of time and then we do interviews and then for a fire employee there's got to be a physical, drug test, background check. It takes a period of time to fill a position and so the request is tonight for you to consider funding effective January 1 through June 30 of fiscal 24 those 19 positions. I'll get back to the chief position in just a minute.

Specific questions, you were asking about the budget amendment, so we have estimated the cost of these 19 positions at \$1.1 million. Where would we get that money? Our budget has to balance so if we are increasing our expenses by \$1.1 million, where would that money come from. We've been informed we've got a \$200,000 grant from the State of North Carolina to support fire services. Thank you, Representative Bradford. We're very appreciative of that. We have no reason to believe that's a recurring grant. That's a one-time thing, so the first \$200,000 of the \$1.1 million would come from the State grant. As the Chief just described, since he's unable to fill positions, it doesn't make sense for us to continue to give him funds for positions that are not filled, so we would reduce the first two payments in calendar 24 of what we would ordinarily make a quarterly distribution to the Fire Department. We would reduce that by the \$607,178 and this is a request tonight to come out of the General Fund for what I'm going to call \$305,000.

Anthony texted me picking on me earlier, so let me tell you what that last bullet point means. We don't know how many of our current firefighters might choose to come to work for us full-time. If somebody who's working for us part-time today chooses to come to work for us full-time, theoretically the gear that they already have issued to them would work. But there's a difference in say the size of me and Anthony and so gear that would fit me might not necessarily fit Anthony and so on and so forth and so we don't know exactly how much gear that we need to buy now. I've been here 7 years. For about the first 3 or 4 years of my tenure here each year when the board adopted a budget to give the Fire Department their annual contribution, we withheld at the Town \$100,000 of that. There's \$321,000 of that that still sits in our total fund balance that originally was agreed to give the Fire Department and so we want to put you on notice here we expect that we'd come back to you when we know how much gear we need to buy and use part of that \$301,000 built up emergency services fund balance.

I could stay on this slide forever. I could have made this slide 12 columns and it wouldn't have been enough. I need personally to know how other departments are operating compared to us. Are there other municipalities that have some great idea on how to save money running a fire department that I don't know. I could have easily added columns here for what the ISO rating is for each department. This is not how good the chief thinks his department is, that's not how good Jackie thinks it is, the State Department of Insurance assigns an ISO rating about effectiveness of the fire department. Our current rating is currently 3. Each of the departments listed here, if memory serves, has a I'm going to call it better because you want a lower number, so 1 is the best rating that you can have, ours is 3, so we are operating at a lower budget than other agencies.

These two bullet points on the bottom are very important. There are different services and there are.....fire inspections for instances. Some departments have fire inspections within the fire department. We do not. Statesville off the top of my head, I meant to look again today and forgot, but there is a substantial portion of capital they funded as a one-year item, so I'm not sure it's a completely apples to apples comparison. When you think about what calls have to be responded to, I ask you to think about number of square miles protected, their ISO rating, I ask you to think about density, so not just population, but there is appreciably a density difference between say us and Thomasville or I would argue even Statesville. There are a lot of factors that go in here. I have an estimate that says undetermined at Thomasville for the number of firefighters they have. I have an estimate from the state that says they staff their four stations with 69 people. That's how we compare with some other agencies. The only other agency I know of in the state of North Carolina that also has four stations is the City of Jacksonville down east. We've already bought the land for Station 5, that's why I put some municipalities on this chart that have five stations. I suspect that's eventually where we are headed if not more.

We commented justifying why we are seeking this budget amendment now in October if the positions wouldn't start until January. There is a lot of work that still needs to be done, so our agreement with the Fire Department still needs to be amended. The Fire Department's bylaws need to be amended. Our Personnel Policy was not adopted to contemplate that we'd have firefighters working 24-hour shifts. There will be changes that we need to our Personnel Policy. While our insurance agents have reassured us that we can do what we are proposing to do here among our existing agreements, we just need to.....it's different when they say yeah, sure, we'll do it and you say yeah, I want to make it effective January 1, we've got some ironing out to do there.

It is not a misnomer we didn't leave this bottom bullet point. There will be things we have not thought about that we will need to change. Setting the schedule, there's a lot more work to be done between now, October 16, and January 1 when we potentially put firefighters on the payroll. There will be a lot of decisions that the incoming board will need to make related to fire, so that will later FY24/25 budget including part-timers converting to the Town rather than paid by HFD. There are a lot of intelligent people who have gone down this road before, some of whom would suggest that having staff from two different entities is not a long-term solution and so of the \$5.8 million that we budgeted in the FY24 budget to pay the non-profit inc. to provide fire service here, basically \$4 million of that is in salary and mandatory social security/Medicare and so if we paid that directly, we would have more access directly to exactly which stations and which shifts have vacancies, so an eventual decision and recommendation about whether or not the Town would pay not just the full-timers but the part-timers. I won't bet Anthony's house and car, but I strongly suspect that in calendar 24 a board will get to hear a recommendation about not just these 18 full-timers but part-timers as well.

I benefit wildly from continuing to work on this project with Lara Cagle our HR Director. The title of this entire slide Employer of Choice.....for over 100 years Huntersville Fire Department has served this town and done so amazingly and we are very thankful for their contribution. There is no doubt that saved the Huntersville taxpayer millions and millions of dollars and so it is my assumption that we would like to continue that part-time model for as long as possible because part-time employees are paid fewer benefits, saves the Town dollars and so at the point where a Town Board decides we are having so many staffing issues, we're in more control of our own destiny if we hire full-timers rather than part-timers. That will cost us additional money but we're going to need to decide what we want to do about that. If we get to the point where the Town hires part-time firefighters, it is my understanding having talked to part-time firefighters and this makes a lot of sense to me, remember how we talked about the gap insurance before, if their family is exposed to financial hardship, if they are hurt on the job working for

us, I think it's a non-starter if they don't have gap insurance with us. To the extent that we pursue part-timers, we will need to pursue gap insurance, that's Jackie's opinion.

I'm not asking you to make a decision tonight about this slide, but I will tell you the information that we have to this point. You should know about our agreement with the retirement system. According to the retirement system if employees are going to work routinely more than 1,000 hours a year and they don't vary that 1,000 hours, whether somebody is sworn or fire service employee, if an employee works routinely more than 1,000 hours a year, they need to be put in the retirement system. To not get that coded correctly from the beginning there is an employer contribution and there's an employee contribution.....we don't want to mess that up. At the point where an employee gets 1,000 hours, we need to put them in the retirement system. And Lara I'm sure if she were here would say if we have reason to believe they are going to work 1,000, we ought to do it before they hit 1,000 hours.

The ACA, Affordable Care Act, says that for employees who work more than 30 hours a week, we have to offer them health insurance to the extent that we offer it to other employees and so we are suggesting to you that we think there could eventually be a recommendation to have four different types of employees based on how many hours they might work. That is not the proposal before you tonight. Jackie, you've spoken a lot tonight about the fire chief being an employee and 18 full-timers. There are multiple agencies in our area who have operated what I'm going to refer to as a hybrid system – some municipal employees and some non-profit inc. employees. There are several schools of thought that suggest that that's not the most ideal because in a council/manager form of government there needs to be that the Town Manager in Huntersville is tasked with supervising all employees except the Town Attorney and some oversight of the Town Clerk, but to the extent that we have only 18 full-timers and not the chief reporting to us, then who's in charge of the fire department. Who is our chain of command and so the Town of Huntersville through its quarterly contributions to the fire department is paying the non-profit inc. for the chief's salary, so I would argue you're removing that line of where's your chain of command if rather than paying the non-profit inc. to pay the chief, if you just pay him directly and so that's the rationale behind one fire chief plus 18 full-time firefighters. I will reiterate long-term solution we are going to have to decide how we are going to fill additional shifts. I would invite Lara or the Chief to fill in any holes they feel like I've left and certainly we are all here to respond to questions.

Commissioner Kovacs said a full-time employee works how many hours?

Chief Dotoli said 2,900.

Ms. Cagle said 2,080.

Commissioner Kovacs said a full-time firefighter?

Ms. Cagle said no, a regular full-time employee.

Chief Dotoli said are you talking about firefighters or employees?

Ms. Huffman said Town Hall staff is 2,080, firefighters in 24-hour shifts is generally 2,760.

Ms. Cagle said we are obligated to pay overtime at 2,756 hours. The shifts how they would be working, they're working closer to 2,900 hours a year, so we would be obligated overtime between the 2,756 and 2,900.

Commissioner Kovacs said part-time we pay overtime when?

Chief Dotoli said 40.

Ms. Huffman said part-time employees, the non-profit inc. is required by Fair Labors Standard to pay overtime in excess of 40 hours a week. Municipal firefighters are required to get overtime after 106 hours in a biweekly pay period.

Commissioner Kovacs said so I say in the most lovingly way possible, we squeeze more juice out of full-time than part-time it seems like.

Ms. Huffman said we would get more hours out of municipal firefighters than we would out of non-profit inc. firefighters at the regular rate before overtime applies.

Commissioner Kovacs said I know we are not deciding on the hybrid tonight, but if we were to do the full-time tonight and stick with that for a while, do you feel that could potentially be sustainable for a good amount of time or do you think we would then have to turn around and go turn another 19 full-time.....like that's my question, is this going to set us up for success for a while?

Chief Dotoli said this fills in the holes, fills in the gaps, stops the bleeding and I think we keep the part-timers because they are well trained from Charlotte, they are well trained from Concord, and it allows them to keep working in the system with our full-time staff. As long as we have that we've got complete coverage. We talked about six apparatus, and I don't want anybody to think why doesn't the chief just do it with four and why doesn't he do it with three. We have four fire stations. When Station 2 goes to her store this leaves a giant gap. Station 4 that's the next closest truck just can't move up to Station 2. That's why we keep two stations manned with two apparatus so we can move those other stations around. Skybrook residents, it's a heck of a ride from Station 1 all the way to Skybrook. When that station is out, we have to move the apparatus around to complete the coverage.

We spent hours and days this year on that lake – Mountain Island Lake. We take care of the lake. Somebody has to do the dirty part of when people get hurt and go missing out there and sometimes it takes days, so this is definitely going to help with all the staffing needs and \$300,000, while it might sound like a lot, I think \$2 million for a bridge is a lot and that has nothing to do with the safety of our town.

Ms. Huffman said I'm going to kick myself if you don't let me get this off my chest. Who wants to hang out at 8:30 at night and talk about Fair Labor Standards. Fair Labor Standards requires that you pay overtime based on hitting a ceiling in the number of hours. It has nothing to do with whether somebody is full or part-time.

Commissioner Partee said I have a question and a comment. First of all, I want to thank the Human Resources Department, I want to thank our Town Managers and the Town Attorney and also the Chief for the amount of time and work that you put into this proposal. When it comes to our life and our property and our heirlooms, there's no price that you can put on that. I know when it comes to collective bargaining Police and Fire are at the top of the food chain because we provide a service to protect life and property and put our lives on the line. My other question is about overtime. As you know there's overtime when someone banks out and there's overtime when you are responding to an

alarm or a call and you're held over. Can you differentiate between the two. Is that the same system that you guys use here?

Chief Dotoli said the beauty of having the full-time staff and then backed up with the part-time staff is that if Jackie calls out sick, I have 100 people I could go to to fill in those gaps. That's fine. That's the regular overtime part. Anytime we stay over at fires, yes it costs us. A lot of times the City of Charlotte we get comp time. So, you stay over at a fire two or three hours, maybe it's a big fire, down in Southpark was a little different, so they comp time us – when it's time for you to go home or come in a little late or go home a little early spend time with your family, we give you that back. Now there is days on the weekends I get emails all the time and text messages. Sometimes the City of Charlotte is like 25 firefighters short on a weekend. It's crazy amounts of people. That's all overtime. That's all time and a half that these people that are waiting to get those text messages, they'll go back there and work, which leaves us short. Now I'll never let somebody that's on duty say I just got this text message, I need to go to the City of Charlotte. No. You won't be a fireman here in Huntersville when you get back. We don't play that game, but if they're already on duty they are on duty for us.

Commissioner Munger said this particular issue, I mean it's really got me influx. I'm just kind of all over the map with it to be honest. Do I think it's the right solution? I absolutely do. Long-term it is absolutely the correct solution for us to do to be able to bring in the Fire Department and make it in-house. Is it the right solution today? I don't think it is and I feel like I have to kind of explain why I'm making a decision when I'm doing something that might be considered controversial. One of the things I look at admittedly, right now the current year estimation I think is somewhere in the neighborhood of \$300,000 that would affect the fiscal year 24 budget. We have to look at budgets going forward thereafter and thereafter I think the numbers are going to be closer to \$1.1 million to \$1.5 million relatively because I would assume during the next budget season you're also going to look for an expanded number of possible full-time employees. The problem I have is I know what our tax rate is. I know where the wiggle room is and honestly in my opinion, and I could be incorrect, my opinion is it's not there. We don't have the 1.5 to 2 cents of property tax available to be able to pay full-time firefighters, so for me for us to vote to say next board good luck figuring out how to pay for it would be irresponsible and that's the position I'm coming from in that I feel like it is in the best interest of the next board to look at this full picture, understand the absolute need, be able to plan for it, be able to appropriately set the property tax rate to be able to fund things like this to be able to make sure that our firefighters have everything they need and one of the other things just in general I struggle with is everyone says well that department is light on firefighters, that department is light on firefighters, we are light on firefighters, I struggle with the idea what we could hire 18 that we could actually be competitive against Charlotte and get those bodies. I want the next Board to be empowered to make the absolute best decision because maybe we're not paying enough. Maybe this isn't the right rate. Maybe it should be higher. I know that you can look at things over time but again I just don't want to burden the next board with a decision that was just kind of okay, let's slam it in. I know it's very unpopular because I love the fire department. I absolutely want you guys to have everything you need and be able to do everything you can. It's bad timing unfortunately and I know someone will disagree with me, but I at least wanted to try and explain why I'm going to vote against this. It's not because I don't think the fire department should have the full-time, it's just do it during the budget process. Give it the right approach so that everything is done correctly because one of the slides you showed was loose ends. I look at all those loose ends and there's a lot that needs to be filled in and a lot of things need to change, and I realize that we have the best staff in the entire state if not the country, but it's a lot to burden you with to be able to do all those things and get it done by January. That's my opinion.

Ms. Huffman said thank you for the opportunity. I spoke about enjoying working on this project with Lara. Emily has come up with some very good ideas that has saved a lot of effort and I appreciate working on that project with her as well. She has recommended some changes to the bylaws. She's done a fair amount of research on the least employees. I'm very thankful that we have assembled the team that we have, thank you.

Chief Dotoli said I'll be more direct. I can't save lives if you go that route. I can't put the amount of people to cover the 62 square miles with that path you're going down.....if you are looking at politics, democrats, republicans, pluses, minuses, we put you up here to make decisions in the month of October – not November, not December. We've still got to keep going and you've got to realize when those fire trucks are out of service and they call 911, it's going to be on you when that fire truck doesn't show up. For \$300,000 I think that's an investment that you are making a quality in this for the future.

Commissioner Kidwell said you brought a 5-year contract to this Board and it was approved. If we knew then, if you would have come to us, this Board, and said hey I can do this for 1 year or 1-1/2 years and this is it, I'd be fully behind this. But from a business perspective, if someone brings me a 5-year contract or a 4-year contract, I expect them to hold that contract out. I'm not expecting to hold the 5-year contract out now. I do agree a lot with Commissioner Munger.

Commissioner Kidwell said I voted against it also for legal language. The thing that concerns me is I don't think this is a \$300,000 fix and the next board is going to have to decide, there's no guarantee I'm on that board, but I think this is going to be a significant increase to the budget and they need to be a part of that. I think this can hold off, push it out for a month or whatever it is and allow them and take the time to look at it right now, look at the documentation of all the candidates running and make that decision.

Commissioner Kovacs said do you feel in your first term in the first three months that you would be able to adequately make this decision?

Commissioner Kidwell said yeah, because I knew what I was getting into and I did my research. I read three years of reports from this board. If you signed up to run, you should have done your homework and been ready to step up. Yes, I was ready.

Commissioner Kovacs said absolutely, but you're also still learning in the first three months, so as Commissioner Munger said you don't want to put this on the next board. I don't want to put this on the next board. We sat here and said that we are going to look into this and then we have the fire department saying that we need this so we can protect our residents. We just approved \$2 million for a bridge to walk across the street like that, but we don't want to approve personnel to show up when they call 911.

Commissioner Kidwell said if you want to take the bridge back, I will fully support doing that, because I think people should just walk across the street like normal.

Commissioner Kovacs said but when they get hit because we didn't do the bridge are we going to have firefighters to show up before Medic.

Commissioner Kidwell said there hasn't been any pedestrian accidents at that intersection. There's been vehicle accidents. Since you brought it up, you had three meetings with staff and the fire

department, and nothing was shared with the rest of this Board. Not hey, this was the results from our first meeting, this was the results from our second meeting, this is the results from our third meeting.

Commissioner Kovacs said we just got to this point.

Mayor Bales said commissioners we can't do this back and forth.

Commissioner Kidwell said my apologies.

Mayor Bales said I do want each of you to be heard because I think each of you have something to share obviously.

Commissioner Phillips said so this bridge keeps getting brought up, but the bridge is a one-time occurrence spend and there's potential money out there for more funding and support. This is a \$1 million plus, \$2 million, this is a forever expense and I in good faith cannot saddle another board to this kind of expense when I've been asking for this for four years and then having it to come to me at like the end of my term is really unfortunate, but I can't do that to the citizens to be like yeah let's just casually spend \$2 million. It reminds me of like the presidential pardons when they're going out, like let me get what I want on my way out. It's not a disrespect for you, because for four years I've told you this is where I wanted to be.

Chief Dotoli said and here you are.

Commissioner Phillips said and here we are, but it's at a really terrible time and I think that there is potential to do it better and answer questions along the way and I do put faith in the next board that they will be able to do their jobs otherwise they shouldn't be running.

Mayor Bales said is there a motion.

Commissioner Boone made a motion to approve the appropriation of \$304,952 in general fund balance, recognize and accept a \$200,000 state grant and reduce the fiscal year 2024 fire appropriation to the Huntersville non-profit fire department by \$607,178 in order to fund 19 full-time municipal firefighters for the Huntersville municipal fire department.

Commissioner Partee seconded motion.

Commissioner Munger made a substitute motion to defer action on this budget amendment to December 18, 2023.

Commissioner Kidwell seconded motion.

Mayor Bales called for the vote on the substitute motion to defer action to December 18, 2023.

Motion was tied – Commissioners Munger, Kidwell and Phillips in favor; Commissioners Boone, Kovacs and Partee opposed.

Mayor Bales said so I guess this lands in my lap. A couple of things, then I will chime in. This isn't just a small amount that is being requested for a budget amendment. This actually is setting up this town for a brand-new department and based off of the comparisons in the budget I think you're really looking at

something closer to somewhere between \$15 million and \$18 million long-term in building out a department. I have to admit that when we have these discussions, we very rarely have them to where here's a discussion, now vote on it the same night. You're asking your fellow Board members to support something without having an opportunity to really walk away, digest it, and come back and ask additional questions. I am fully supportive of this creation. I understand where we are. But I don't think that putting it on an October 16 agenda and asking your Board members to not only go into discussion and dialogue around a very serious topic, but to then turn around and ask them to vote the exact same night.....I don't find that to be very fair. And I think that sitting here tonight as I look out there's at least six candidates sitting in the room, at least, with others I guarantee you watching online, so I think that between November 7 and December 18 they can get caught up to speed, because Commissioner Kidwell you are right, when you do this job you hit the ground running and you do all the leg work between election night and the night you are sworn in to be prepared to hit the ground running. This sitting up here is no joke, so I am going to support the deferral until December 18 because frankly if you started tonight, I don't think you're going to get 19 positions hitting January 1 to begin with, I just don't. But let's let this next board do their homework and hit the ground running and make that decision on December 18 and I know I could then put my head on my pillow to know that we have passed the baton the right way, so that is my vote.

MAYOR AND COMMISSIONER REPORTS/CLOSING COMMENTS

Commissioner Munger

- Huntersville Ordinances Advisory Board met on October 5. Commissioner Kovacs attended in my absence.
- The Public Arts Commission held a ribbon cutting for the SculpTOUR.
- Consider supporting local non-profits.

Commissioner Partee

- The Greenway, Trail and Bikeway Commission is having Wine on the Vine October 26.
- Advocate for gun safety. Huntersville Police Department has free gun safety locks.

Commissioner Kidwell

- No Report.

Commissioner Kovacs

- Provided update from the Huntersville Ordinances Advisory Board meeting.
- Provided update from the Lake Norman Chamber of Commerce.

Commissioner Boone

- No Report.

Commissioner Phillips

- No Report.

Mayor Bales

- Expressed appreciation to Commissioner Munger for stepping in for me at the ribbon cutting for SculpTOUR.
- Centralina Regional Council hosted their 55th anniversary of serving the piedmont.
- Lake Norman Economic Development Corporation is currently working on two new projects.

- The Lake Norman Community Health Clinic just celebrated their 25th anniversary serving our communities. They have changed their name to the Cook Clinic.

Mayor Bales said does anyone have any closing comments?

Commissioner Munger said this might be long winded and I apologize in advance. In recognition of October being Breast Cancer Awareness month, I'd like to give a shout-out to some very important people who at one time or another have shared their voice in pursuit of what they believe is best for Town of Huntersville: Amy Hallman, Taylor Hutto, Beejay Caldwell, Gatewood Campbell, Barbara Gerhardt, Ashley Wiley, Janelle Harris, Elaine Kerns, Suzanne Villar, Sarah McAulay, Amanda Dumas, Elizabeth Rodriguez, Cindy Trevisan, Jessika Tucker, Cindy Deutsch, Kathy Jones, Diane McLaine, April Dunn, Audra Collins, Jill Brown, Karen Poppin, Cary Edelstein, Crys Roeder, Michelle Bennett, Jamie Wideman, Kimberle Burton, Brandy Skelly, Deanna Baumgardner, Kathy Lewis, Christianna Bierne, Maria Reese, Michelle Blumenthal, Alisia Bergsman, Varona Wynn, Katie Spikes, Noelle Burton, Linda Angele, Lynn Cavanaugh, Jennifer Hunt, Terra Mills, Jessica Horton, Amelia Burnett, Anna Rubin, Jessica Bustamante, Carmen Cousin, Beverly Mitzel, Cayley Mullen, Trina Loomis, Jodi Wright, Susan Irvin, Jill Swain, Christy Clark, Natasha Marcus, Vickie Sawyer, Elaine Powell, Melissa Easily, Heather Mahoney, Tracy Barron, Tracy Houk, Kayleigh Mielenz, Pattie McGinnis, Lara Cagle, Catherine Cook, Odette Saglimbeni, Kim Strickland, Janet Pierson, Jackie Huffman, Emily Sloop, Commissioner Amber Kovacs, Mayor Pro Tem Stacy Phillips, Mayor Melinda Bales, and the many other wonderful women whom I have failed to mention here. I want you to know that I respect your voice. I may not always agree with your opinion, but I do respect it. I appreciate all the things that you are trying to accomplish for our community, and I want you to know that on occasion, when discussing some of these topics, you might become impassioned on some of these topics, which sometimes can be contagious and that is a good thing. I never want you to lose that passion, that fuel for change and if a man ever tries to intimidate you, says you're being too emotional or tells you to calm down, I can guarantee you that there is at least one other man in the room, if not every other man in the room, who wants you to stand up and shout I will not be silenced. And now I am going to do what more of my gender should probably do on a regular basis, I'm going to sit down and shut up.

Commissioner Kidwell said well said, sir.

There being no further business, the meeting was adjourned.

Approved this the ____ day of _____, 2023.

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Lora Mastrofrancesco, Transportation Engineer/Project Manager

Date: November 6, 2023

Subject: Budget Amendment - Main Street Project

EXPLAIN REQUEST:

Recognize revenue in the amount of \$3,144,600 from the North Carolina Department of Transportation for the Main Street project and appropriate expense to the right of way account (405700.0550.06011) of \$1,317,600 and the construction account (405700.0564.06011) in the amount of \$1,827,000.

ACTION RECOMMENDED:

Approve Budget Amendment

FINANCIAL IMPLICATIONS:

No net impact to fund balance; offsetting revenue and expense.

ATTACHMENTS:

1. SIX Amendment Capital Prj Ord- Main Street
2. Main Street U-5908 _3rd_Supplemental_Agreement - EXECUTED



SIXTH AMENDMENT TO THE MAIN STREET CAPITAL PROJECT ORDINANCE

WHEREAS, it has been determined that G.S. 159-45 and related chapters allow local governments to finance capital projects through the use of General Obligation Bonds; and

WHEREAS, the citizens of Huntersville voted on November 6, 2012 and approved the Public Improvement Bonds voting 68.11% in favor and Street Bonds voting 67.86% in favor; and

WHEREAS, the Local Government Commission approved a three year extension on September 10, 2019 for the \$17,850,000 Street Bonds and \$7,150,000 of Public Improvement bonds authorized on November 6, 2012 of which \$11,985,000 of Street Bonds and \$3,575,000 of Public Improvement Bonds remain unissued, and

WHEREAS, the Board approved the Resolution to adopt the sale of \$15,560,000 General Obligation Bonds on February 3, 2020, and

WHEREAS, the bonds were sold on February 19, 2020, and

WHEREAS, in accordance with North Carolina General Statute 159-13.2, the Town is authorized to establish a balanced project ordinance for projects involving the construction or acquisition of a capital asset; and

WHEREAS, on November 2, 2015 a project ordinance was adopted for the Main Street Project for the purchase of right of way, design and engineering, utility relocation, landscaping and construction costs ("Project Ordinance"); and

WHEREAS, the Project Ordinance was amended on May 18, 2020 for the purpose of incorporating the additional funding sources which are the 2020 Bonds issued and the Bonus Allocation funds for the continued purchase of right of way, design and engineering, utility relocation, landscaping, construction and bond issuance costs; and

WHEREAS, the Project Ordinance was amended on April 19, 2021 for the purpose of incorporating the additional funding sources which are the General Fund Balance, the Bonus Allocation funds and contribution from Charlotte Water for the continued purchase of right of way, design and engineering, utility relocation, landscaping, construction and water and sewer improvements; and

WHEREAS, the Project Ordinance was amended on May 15, 2023 for the purpose of incorporating the additional funds source from the 2013 Bonds for continued purchase of right of way, design and engineering, utility relocation, landscaping, construction and water and sewer improvements; and

WHEREAS, the Project Ordinance was amended on June 5, 2023 for the purpose of incorporating additional funding source from the 2016 Bonds and Charlotte Water for the continued purchase of right of way, design and engineering, utility relocation, landscaping, construction and water and sewer and improvements; and

WHEREAS, the Project Ordinance was amended on June 20, 2023 for the purpose of incorporating additional interest income from the 2013 Bonds and the 2016 Bonds for the continued purchase of right of way, design and engineering, utility relocation, landscaping, construction and water and sewer improvements; and

WHEREAS, the Project Ordinance needs to be amended for the purpose of incorporating additional funding source of Bonus Allocation funds for the continued purchase of right of way, design and engineering, utility relocation, landscaping, construction and water and sewer improvements; and

NOW, THEREFORE, BE IT ORDAINED by the Board of Commissioners of the Town of Huntersville that a Project Ordinance is hereby amended as follows:

SECTION 1. The Main Street project authorized the upgrading of Main Street and providing connections to NC 115 at Mt. Holly-Huntersville Road and Fourth Street and related NC DOT municipal agreements have been executed.

SECTION 2. The officers of the unit are hereby directed to proceed with the capital project within the terms of the bond resolution, grant documents, and the budget contained herein. Such authorization includes but is not limited to bidding, awarding and entering into contracts as necessary to carry out the capital project as allowed by law and after review by the Town Attorney for compliance with lawful procedures.

SECTION 3. The following amounts are appropriated for the project:

	11/2/2015 Original Budget	Prior Amendments	11/6/2023 Sixth Amendment	Total Budget
Contruction, Utility relocation, purchase of right of way, design and engineering and landscaping and bond issuance cost				
TOTAL PROJECT COSTS	\$ 9,000,000	\$ 19,670,210	\$ 3,144,600	\$ 31,814,810

SECTION 4. The following revenues are anticipated to be available to complete this project:

	11/2/2015 Original Budget	Prior Amendments	11/6/2023 Sixth Amendment	Total Budget
2013 Bonds Issued	\$ -	\$ 13,933		\$ 13,933
2016 Bonds Issued	4,000,000	339,400		4,339,400
2020 Bonds Issued	-	2,939,945		2,939,945
Grant Fund	5,000,000	7,634,000	3,144,600	15,778,600
General Fund Balance	-	3,892,932		3,892,932
Contribution from Charlotte Water	-	4,850,000		4,850,000
TOTAL REVENUE	\$ 9,000,000	\$ 19,670,210	\$ 3,144,600	\$ 31,814,810

SECTION 5. Copies of this capital project ordinance shall be furnished to the Clerk to the Governing Board, and to the Budget Officer and the Finance Officer for direction in carrying out this project

Adopted this 6th day of November 2023.

ATTEST:

Janet Pierson, Town Clerk

Melinda Bales, Mayor

APPROVED AS TO FORM:

Emily Sloop, Town Attorney

NORTH CAROLINA
MECKLENBURG COUNTY

3RD SUPPLEMENTAL AGREEMENT

DATE: 07/25/2023

NORTH CAROLINA DEPARTMENT OF
TRANSPORTATION

TIP #: U-5908

AND

WBS ELEMENTS: PE _____

ROW 46453.2.1

TOWN OF HUNTERSVILLE

CON 46453.3.1

FEDERAL-AID #: STP-0115(009)

CFDA #: 20.205

TOTAL SUPPLEMENTAL FUNDS [NCDOT PARTICIPATION] \$3,144,600

THIS AGREEMENT is made and entered into on the last date executed below, by and between the North Carolina Department of Transportation, an agency of the State of North Carolina, hereinafter referred to as the "Department", and the Town of Huntersville, hereinafter referred to as the "Municipality."

WITNESSETH:

WHEREAS, the Department and the Municipality on 10/10/2017, entered into a certain Project Agreement for the original scope: right of way acquisition, utility relocation and construction of upgrades to Main Street from Mt Holly-Huntersville Road to Ramah Church Road, programmed under Project U- 5908; and,

WHEREAS, on 05/09/2018, the Municipality was awarded additional funding to complete the project and the Department adjusted the reimbursement rates on each phase of work, and

WHEREAS, on 03/06/2020, the Charlotte Regional Transportation Planning Organization awarded additional funding to complete the project and the Department adjusted the reimbursement rate on the CON phase; and,

WHEREAS, the Municipality and the Charlotte Regional Transportation Planning Organization requested additional funding to complete the project and the Department agrees.

NOW THEREFORE, the parties wish to supplement the aforementioned Agreement whereby the following provisions are amended:

FUNDING

PROGRAMMING AND AUTHORIZATION OF FEDERAL FUNDS

The funding currently programmed for the project in the State Transportation Improvement Program (STIP) includes BGANY and BGDA. The funding sources may be modified with the coordination and approval of the respective Metropolitan Planning Organization (MPO) and/or the Department prior to authorization of funds. The Department will authorize and reimburse federal funding based on the type of federal funding that is programmed in the STIP at the time of the authorization request. The Department will notify the Municipality of the type of federal funds authorized by issuing a Technical Amendment – Funds Authorization letter. A modification in the source of funds will have no effect on project responsibilities outlined in this agreement.

REIMBURSEMENT FOR ELIGIBLE ACTIVITIES

The Department's original participation was \$12,634,000 to be reimbursed at a rate of 80% for the ROW phase and 60% for the CON phase. The Department has agreed to reimburse the Municipality an additional \$3,144,600 of funds. The Municipality will provide the local match as indicated in the REVISED Funding Table below:

REVISED FUNDING TABLE

Fund Source (Federal)	Federal Funds Amount	Phase of Work	Reimbursement Rate	Non-Federal Match \$	Non-Federal Match Rate
BGDA	\$4,090,422	ROW	80%	\$1,022,605	20%
Demonstration	\$227,178			\$56,795	
BGANY	\$1,320,000			\$330,000	
Sub-total	\$5,637,600			\$1,409,400	
Bonus Allocation	\$3,490,000	Construction	60%	\$2,326,667	40%
BGDA	\$1,871,000			\$1,247,333	
BGANY	\$4,780,000			\$3,186,667	
Sub-total	\$10,141,000			\$6,760,667	
Total	\$15,778,600		Local Match	\$8,170,067	

OTHER PROVISIONS

The other party to this Agreement shall comply with Title VI of the Civil Rights Act of 1964 (Title 49 CFR, Subtitle A, Part 21) and related nondiscrimination authorities. Title VI and related authorities prohibit discrimination on the basis of race, color, national origin, disability, gender, and age in all programs or activities of any recipient of Federal assistance.

A copy or facsimile copy of the signature of any party shall be deemed an original with each fully executed copy of the Agreement as binding as an original, and the parties agree that this Agreement can be executed in counterparts, as duplicate originals, with facsimile signatures sufficient to evidence an agreement to be bound by the terms of the Agreement.

Except as hereinabove provided, the Agreement heretofore executed by the Department and the Municipality on 10/10/2017, is ratified and affirmed as therein provided.

IN WITNESS WHEREOF, this Agreement has been executed, in duplicate, the day and year heretofore set out, on the part of the Department and the Municipality by authority duly given.

TOWN OF HUNTERSVILLE

DocuSigned by:
BY: Anthony Roberts
19DC7CC4ADC14CA...
TITLE: Town Manager
DATE: 07/27/2023

NCGS 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization. No Change

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act.

DocuSigned by:
[Signature]
F9129C826241461...
(FINANCE OFFICER)

Federal Tax Identification Number
566001252

Remittance Address:

Town of Huntersville
PO Box 664

Huntersville NC 28070

DEPARTMENT OF TRANSPORTATION

DocuSigned by:
BY: [Signature]
383C434421994A4...
(CHIEF ENGINEER)

DATE: 09/13/2023

APPROVED BY BOARD OF TRANSPORTATION ITEM O: September 7, 2023 (Date)

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Stephen Trott, Director of Engineering

Date: November 6, 2023

Subject: Budget Amendment - Left-turn Lane Northcross Drive

EXPLAIN REQUEST:

Recognize revenue of \$235,374 (103833.9999 - Contributed Capital) from Commercial Real Estate Advisors III escrow account. These funds were escrowed for the purpose of installing a left turn lane at the northern end of Northcross Drive (105700.0314).

ACTION RECOMMENDED:

Approve Budget Amendment

FINANCIAL IMPLICATIONS:

No net impact to fund balance; offsetting revenue and expense.

ATTACHMENTS:

None

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Barry Graham, Chief of Police

Date: November 6, 2023

Subject: Purchase of Police Vehicles

EXPLAIN REQUEST:

We are requesting approval to enter into a contract with Ilderton Dodge Chrysler Jeep for the purchase of 14 new vehicles for \$568,610. These vehicles are 2024 Law Enforcement Dodge Durangos and Ilderton Dodge Chrysler Jeep is an approved vendor on the state's vehicle purchasing contract.

ACTION RECOMMENDED:

Approve contract to purchase 14 new 2024 Police Vehicles.

FINANCIAL IMPLICATIONS:

\$568,610

ATTACHMENTS:

1. Purchase of Dodge Police Vehicles Contract (14)
2. Ilderton Dodge Chrysler Jeep



105 Gilead Road, Suite 300
Huntersville, NC 28078
(704) 766-2220

CONTRACT FOR GOODS

SELLER: **Ilderton Dodge Chry Jeep**
 701 S. Main Street
 High Point, NC 27260

Catherine Martin
cmartin@ilderton.com

PROJECT: **Purchase of 14 Vehicles**
SITE **Huntersville Police Department**
LOCATION(S): **9630 Julian Clark Ave.**
 Huntersville, NC 28078

This Contract for good, and all exhibits, (collectively this “Contract”) is entered into this _____ day of _____, 20____ by and between the Town of Huntersville, a municipal corporation of the State of North Carolina, (the “Town”) and Ilderton Dodge Chry Jeep located at 701 S. Main Street High Point, NC 27260 (the “Seller”).

WITNESSETH:

That for and in consideration of the mutual promises set forth in this Contract, the sufficiency of which is acknowledged by the parties hereto, the parties do mutually agree as follows:

1. Sale of Goods. Pursuant to the terms and conditions of this Contract, the Seller agrees to transfer ownership and deliver possession to the Town, and the Town shall pay for and accept from the Seller, the “Goods” as shown in Exhibit B, attached hereto.
2. Purchase Price. In consideration of the Goods, Town shall pay to Seller the Purchase Price as shown in the Exhibit C attached hereto.
3. Bid Documents. If applicable, Seller and Town acknowledge that this Contract for Goods is based on bid documents submitted by Seller to Town. The bid documents shall control any terms not stated herein.
4. Standard Terms and Conditions. The Standard Terms and Conditions, attached hereto as Exhibit A, shall be a part of this Contract. The Standard Terms and Conditions are hereby incorporated by reference, and all parties agree to be bound thereby.
5. Delivery. Seller shall deliver the Goods to Town within the date specified in the bid documents. If the Contract was not subject to bidding requirements, the Seller shall deliver the Goods to the location and by the date specified in Exhibit B. Seller shall be responsible for freight, delivery, and shipping costs. Seller shall retain title to and ownership of the Goods until they are delivered to and approved by the Town.

In witness thereof, the contracting parties, by their authorized agents, affix their signatures and seals at Huntersville, North Carolina, this _____ day of _____, 20____.

Seller

Town of Huntersville

Name:

Name of Seller (type or print)

Town Manager

By:

(Signature)

Attest: _____
Town Clerk

Title:

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act

Attest:

(Secretary, if a corporation)

Finance Director

EXHIBIT A
STANDARD TERMS & CONDITIONS

1. **Acceptance.** Contractor's acknowledgment of the terms of this Contract constitutes an agreement to: (i) all terms and conditions set forth or referenced herein, (ii) on any attachments hereto, (iii) any applicable solicitation documentation related to this Contract (including without limitation any request for proposals or invitation for bids or Contractor's response thereto) that deal with the same subject matter as this Contract, and (iv) any other terms and conditions of a written agreement signed by Contractor and the Town that deals with the same subject matter as this Contract (collectively, the "Contract Documents"). The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Contractor and the Town with respect to the purchase by the Town of the: (i) goods ("Goods") and/or (ii) services provided or work performed ("Services") as described in the Contract Documents. The agreements set forth in the Contract Documents are sometimes referred to herein as the "Contract." In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to the Town shall control. No additional or supplemental provision or provisions in variance herewith that may appear in Contractor's quotation, acknowledgment, invoice, or in any other communication from Contractor to the Town shall be deemed accepted by or binding on the Town. The Town hereby expressly rejects all such provisions which supplement, modify, or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until the Town's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by the Town are subject to correction.
2. **Entire Agreement.** These terms and conditions and any other specifications contained in any other documents referenced shall constitute and represent the complete and entire agreement between the Town and Contractor and supersede all previous communications, either written or verbal with respect to the subject matter of this Contract.
3. **Changes, Additions, Deletions.** No changes, additions, deletions, or substitutions of scope of work, specifications, terms and conditions, quantity, unit of issue, delivery date, delivery charges or price will be permitted without the prior written approval from the Town.
4. **Relationship of the Parties.** The Contractor is an independent contractor and not an employee of the Town. The conduct and control of the work will lie solely with the Contractor. The Contract shall not be construed as establishing a joint venture, partnership, or any principal-agent relationship for any purpose between the Contractor and the Town. Employees of the Contractor shall remain subject to the exclusive control and supervision of the Contractor, which is solely responsible for their compensation.
5. **Prices.** If Contractor's price or the regular market price of any of the Goods or Services covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods or performance of such Services, Contractor agrees to give the Town the benefit of such lower price on any such Goods or Services. In no event shall Contractor's price be higher than the price last quoted or last charged to the Town unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
6. **Taxes.** Any applicable taxes shall be invoiced as a separate item.
7. **Substitutions.** No substitutions or cancellations shall be permitted without prior written approval from the Town.
8. **Indemnification.** To the greatest extent allowed by North Carolina law the Contractor shall indemnify and hold harmless the Town, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses (including expenses of litigation and

attorneys' fees), and attorneys' fees ("Claims"). In the event that any portion of the Goods under the Contract shall be defective in any respect whatsoever, the Firm shall indemnify and save harmless the Town, its officers, agents, employees, and assigns from and against all Claims as defined herein, but only to the extent allowed by law.

Nothing contained in this Contract shall waive the Constitutional limitation on the Town indemnifying obligations of other parties.

9. **Invoices and Payment Terms.** It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing that does not comply with this provision will subject the Contract to cancellation. Upon satisfactory delivery of the Goods or satisfactory completion of the Work, all invoices and statements shall reference the Contract number and be submitted to: Town of Huntersville, Accounts Payable, PO Box 664, Huntersville, North Carolina, 28070. Payment terms are Net 30 days after receipt of correct, undisputed invoice or acceptance of Goods or Services, whichever is later.
10. **Anti-Discrimination and Equal Employment.** During the performance of the Contract, Contractor shall comply with all federal and state requirements concerning fair and equal employment and shall not discriminate against or deny the Contract's benefits to any person on the basis of race, religion, color, creed, national origin, age, sex (including sexual orientation, gender identity, and pregnancy), disability or handicapping condition, or genetic information.
11. **Ethics in Public Contracting.** By submitting their prices and acceptance of this Contract, all Contractors certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other supplier, manufacturer, or subcontractor in connection with their offer, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
12. **Applicable Laws and Courts.** All Town Contracts shall be governed in all respects by the laws of the State of North Carolina. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation, and enforcement of the Contract, shall be governed in all respects by the laws of the State of North Carolina and venue shall be proper only in a court of competent jurisdiction located in Mecklenburg County, North Carolina. The Contractor represents and warrants that it shall comply with all applicable federal, state, and local laws, regulations, and orders, including, not limited to, licensure requirements.
13. **Codes and Permits.** When applicable, the Contractor shall obtain all required permits, give all required notices, and comply with all laws, ordinances, codes, rules, and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules and regulations, and without such notice to the Town, the Contractor shall bear all cost arising therefrom.
14. **License Requirement.** If applicable, the Contractor must be a licensed General Contractor as required by North Carolina General Statutes Section 87-1 and must have a good ethical and professional standing with the North Carolina General Contractor's Licensing Board. The Contractor will be responsible for providing properly qualified, licensed (if required) personnel to complete the Work in accordance with the standard of care ordinarily used by members of the Contractor's profession practicing under similar circumstances and at the same time in Mecklenburg County.

15. **Strict Compliance.** The Town may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.
16. **Assignment.** Contractor may not assign, pledge, or in any manner encumber Contractor's rights under this Contract or delegate the performance of any of its obligations hereunder, without Town's prior, express written consent.
17. **General Provisions.** The Town's remedies as set forth herein are not exclusive. Any delay or omission by the Town in exercising any right hereunder, or any waiver by the Town of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default.
18. **Warranties.** The Contractor warrants it shall adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town for the Goods outlined in this Contract and any attached specifications. Contractor warrants that any finished work completed hereunder shall also adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town. Contractor warrants that all Goods delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance, or payment by the Town for the Goods and shall run to the Town and any user of the Goods. This express warranty is in addition to Contractor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or in equity, the Town shall be entitled to consequential and incidental damages.
19. **Quality and Workmanship.** All Goods delivered shall be to the satisfaction of the Town. The work shall not be considered complete nor applicable payments rendered until the Town is satisfied with the Goods provided.
20. **Default.** The Town may terminate the Contract, in whole or in part, immediately and without prior notice upon breach of the Contract by the Contractor. In addition to any other remedies available to the Town in law or equity, the Town may procure upon such terms as the Town shall deem appropriate, Goods substantially similar to those so terminated, in which case the Contractor shall be liable to the Town for any excess costs for such similar supplies or Goods and any expenses incurred in connection therewith.
21. **Termination for Convenience.** The Town shall have the right, without assigning any reason therefore, to terminate the Contract, in whole or in part, at any time at its complete discretion by providing 10 days' notice in writing from the Town to Contractor. If the Contract is terminated by the Town in accordance with this paragraph, the Contractor will be paid in an amount which bears the same ratio to the total compensation as does the Goods actually delivered or performed to the total originally contemplated in the Contract. The Town will not be liable to the Contractor for any costs for materials acquired or contracted for if such costs were incurred prior to the date of this Contract.
22. **Risk of Loss.** Risk of Loss for all supplies, materials, the Work performed, and the Project as it is being constructed, shall be on the Contractor until such time as substantial completion is achieved, and approved by the Town.
23. **No Third-Party Beneficiaries.** There shall be no intended nor incidental third-party beneficiaries of this Contract. Contractor shall include in all contracts, subcontracts, or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third-party beneficiaries.

24. **Exclusivity.** Nothing in this Contract shall require the Town to use the Contractor or prohibit the Town from soliciting third parties for the good or services provided in this Contract.
25. **Confidentiality.** The Contractor acknowledges the Town is subject public records law and no term shall be inconsistent with N.C.G.S. §132 et al.
26. **Valid Contract for Goods.** In order for a Contract of the Town to be valid, it must be executed by the Town Manager or his or her authorized designee, and must be pre-audited in that manner required by the Local Government Budget and Fiscal Control Act, as the same may be amended.
27. **Verification of Work Authorization.** Contractor shall comply with, and require all contractors and subcontractors to comply with, the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes, "Verification of Work Authorization," sometimes known as E-verify, for all contractors and subcontractors.
28. **Iran Divestment List.** With the execution hereof, Contractor, certifies that they are not on the Iran Final Divestment List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.58, and will not contract with anyone on such List in performance of the work hereunder.
29. **Buyer.** All references to Buyer or Town, throughout these terms and conditions, shall refer to the Town of Huntersville, North Carolina.
30. **Contractor.** All references to Contractor, Seller, or Firm throughout these terms and conditions shall refer to the contractor identified on page 1 of this Contract.
31. **Availability of Funds.** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the Town for the purpose set forth in this agreement.
32. **Severability.** If any provision of this Contract is found to be invalid or unlawful, then remainder of this Contract shall not be affected thereby, and each remaining provision shall be valid and enforced to the fullest extent permitted by law.
33. **Companies that Boycott Israel.** With the execution hereof, Contractor, certifies that they are not on the Companies that Boycott Israel List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.80, and will not contract with anyone on such List in performance of the work hereunder.
34. **Governmental Immunity.** Nothing contained in this Contract shall constitute a waiver of the Town's governmental immunity or of any limitation on liability or damages created by law.

EXHIBIT B – GOODS AND PRICINGS

(Insert description of goods purchased)



ILDERTON

DODGE

CHEVROLET

Jeep

RAM

701-712 South Main Street
High Point, NC 27260
(336) 841-6100

BUSINESS LINK

10/12/2023

Buyer:	HUNTERSVILLE POLICE DEPT	Cell:			
	CAPT SEAN FREESTON				
Phone:	(704) 464-5354	Phone:			
E-Mail:	SFREESTON@HUNTERSVILLE.ORG	Fax:			

		TRADE	
VEHICLE	DODGE DURANGO PURSUIT AWD	Make:	
Year:	2024	Model:	
Color:	BLACK	Year:	
Engine:	3.6L V6 24V VVT	Color:	
Drive		VIN:	
Mileage:		Stock #:	
		ACV:	

MSRP

Sale Price	NC STATE CONTRACT 070A	\$ 39,535.00
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Options Included			
VINYL FLOOR / CLOTH FRONT SEATS (NO CONSOLE)	\$ -		\$ -
4 KEY FOBS / SHIFTER ON THE COLUMN	\$ -		\$ -
BLACK STEEL WHEELS W SILVER CENTER CAP			\$ -
TRAILER TOW GROUP IV / BLIND SPOT CROSS PATH DET			\$ -
LED LEFT SPOT LAMP	\$ 640.00		\$ -
DEACTIVATE REAR WINDOWS/DOORS	\$ 90.00		\$ -
SKID PLATE GROUP	\$ 350.00		\$ -
	\$ -		\$ -
	\$ -		\$ -
	\$ -		\$ -
	\$ -		\$ -
	\$ -		\$ -

Options Total	\$ 1,080.00
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Sub Total	\$ 40,615.00
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Units:	14
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ORDERING OPEN NOW WITH PRODUCTION BEGINNING EARLY NOVEMBER
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BALANCE DUE	\$ 568,610.00
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Manager Catherine Martin Customer _____
DIRECTOR OF FLEET SALES AUTHORIZED PERSONEL

**RESOLUTION TO APPROVE CONTRACT FOR THE
PURCHASE OF POLICE VEHICLES**

WHEREAS, Huntersville Police Department desires to contract with Ilderton Dodge Chrysler Jeep for the purchase of 14 new police vehicles;

WHEREAS, Ilderton Dodge Chrysler Jeep is an approved vendor on the state's vehicle purchasing contract; and

NOW THEREFORE, be it **RESOLVED** that the Town of Huntersville Board of Commissioners:

1. Approves the contract with Ilderton Dodge for the purchase of 14 new police vehicles (the "Contract") attached hereto as Exhibit A.
2. The Board authorizes the Town Manager for the Town of Huntersville to execute the Contract on behalf of the Town.
3. The Board authorizes the Town Manager to, on the advice of counsel, to take any actions necessary to execute the provisions of this resolution.

Adopted this the _____ day of _____, 2023.

ATTEST:

Janet Pierson, Town Clerk

Melinda Bales, Mayor

Approved as to Form:

Emily Sloop, Town Attorney

EXHIBIT A

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Michael Jaycocks, Director of Parks and Recreation

Date: November 6, 2023

Subject: North Mecklenburg Park Splash Pad Budget Amendment

EXPLAIN REQUEST:

Appropriate Parks & Recreation Capital Reserve fund revenue (103510.9999) in the amount of \$98,250 to the North Mecklenburg Park splash pad project (105400.0564.23008). The additional funds are for two additional shade structures and to upgrade the concrete pad and add safety surfacing.

ACTION RECOMMENDED:

Approve Budget Amendment

FINANCIAL IMPLICATIONS:

No net impact to fund balance; offsetting revenue and expense.

ATTACHMENTS:

None

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Michael Jaycocks, Director of Parks and Recreation

Date: November 6, 2023

Subject: Resolution - North Meck Park Splash Pad Project

EXPLAIN REQUEST:

This project will provide the town's first splash pad. Splash Pads have been one of the top requested park amenities by the residents and were identified in the 2030 Parks and Recreation Master Plan. This project was approved in the FY23 budget. The Parks and Recreation Commission unanimously recommended using additional funds from the Park Capital Reserve Fund to accept the two alternates. Those two alternates will provide more shade structures and safer surfacing on the splash pad. This project will be completed by May 2024, just in time for the summer season.

ACTION RECOMMENDED:

Adopt Resolution to award the bid for the North Mecklenburg Park Splash Pad Project and approve the construction contract.

FINANCIAL IMPLICATIONS:

\$885,550

ATTACHMENTS:

1. R-2023-45 Resolution awarding the contract to Hoss Contracting 11-6-2023
2. 2023-10-25 North Mecklenburg Park Splash Pad Designer Award Letter
3. Hoss Contracting Construction Services Contract NMP Splash Pad
4. Hoss Contracting Bid
5. HUN22003 N Mecklenburg Park Splash Pad Plans Final
6. 2023-09-29 - Addendum 1 - Summary
7. 2023-10-13 - Addendum 2 - Summary
8. North Meck Splash Pad Project Manual AD



RESOLUTION OF THE TOWN OF HUNTERSVILLE TO AWARD THE BID FOR THE NORTH MECKLENBURG PARK SPLASH PAD PROJECT AND APPROVE THE CONSTRUCTION CONTRACT

WHEREAS, the Town of Huntersville received formal, written, sealed bids for the construction and installation of a Splash Pad at North Mecklenburg Park (the "Project"); and

WHEREAS, the Town of Huntersville advertised the request for bids on September 19, 2023; and

WHEREAS, the lowest responsive responsible bidder was Hoss Contracting, Inc., a North Carolina company located in Monroe, NC ("Low Bidder"); and

WHEREAS, the Town wishes to award the Project to the Low Bidder, accept certain alternates that were bid, and approve and establish administrative authority for the construction contract with the Low Bidder;

NOW THEREFORE, BE IT RESOLVED AS FOLLOWS:

1. The Board of Commissioners awards the Project to the Low Bidder, in accordance with the Bid Proposal submitted, as modified by the Contract Documents, and accepts the alternates bid as follows:
Base Bid consisting of:
 1. Splash Pad: \$787,300.00 (lump sum)
 2. Alternate 1: Two additional cantilever shade sails \$33,750.00 (lump sum)
 3. Alternate 2: Splash Pad Specialty Surfacing \$64,500.00**Total Bid Amount: \$885,550.00 (lump sum)**
2. The draft Construction Contract, attached hereto as Exhibit 1, is hereby approved. As used herein, the Construction Contract is deemed to include Exhibit A, attached thereto, and all Contract Documents identified and incorporated therein by reference.
3. The Board hereby authorizes the Town Manager, acting on advice of counsel, to take any actions necessary to effect the provisions of this Resolution, including signing the Agreement attached with such modification as may be required. Provided a budget amendment is not necessary, the Town Manager shall have the authority to approve change orders to the Construction Contract for time and price, however the total of all change orders approved by the Town Manager may not exceed five percent (5%) of the Total Bid Amount stated in paragraph 1, above.
4. This Resolution shall be effective as of the date its adoption.

Adopted this 6th day of November, 2023.

ATTEST:

Janet Pierson, Town Clerk

Melinda Bales, Mayor

APPROVED AS TO FORM:

Emily Sloop, Town Attorney

October 25, 2023

Mr. Michael Jaycocks
Parks + Recreation Director
Town of Huntersville, NC

RE: North Mecklenburg Park Splash Pad

Dear Mr. Jaycocks,

On October 17, 2019²³, we received and opened bids from 3 potential contractors for the proposed splash pad project at the North Mecklenburg Park in Huntersville NC. Based on notification from you on October 25, 2023, we understand that we will be accepting add alternate numbers one (2 shade sails) and number two (specialty surfacing).

Therefore, with those alternates included in the project, we recommend awarding the apparent low bidder Hoss Contracting in the amount of \$885,550 to complete the project.

Original Base Bid	\$787,300
Alternate 1	\$33,750
Alternate 2	\$64,500
Total Construction Contract	\$885,550

If you should have any questions or require additional information, please do not hesitate to contact me at (704)239-5088.

Sincerely,
MCADAMS



Nick Lowe, RLA
Senior Landscape Architect, Planning + Design

Bid Tabulation	
North Mecklenburg Park Splash Pad	
McAdams Project#: HUN22003 Construction	Date: October 17, 2023 Time: 2:00 PM. Location: Council Chambers

GENERAL CONTRACTOR					
Name:	Miles McClellan	Eaglewood	Hoss Contracting		
License No.:	63358	12347	77611		

Questions Asked Prior to Opening Bids

1. Have all bidders received all addenda issued?
2. Was anyone denied the right to bid?
3. Are there any objections to proceeding with the bid opening?

BID ITEMS						
Signed/Sealed Bid Form	yes	yes	yes			
5% Bond	yes	yes	yes			
Signed/Acknowledgement of Addenda	yes	yes	yes			
Unit Pricing						
Qualification form	yes	yes	yes			
Non Colusion Affidavit	yes	yes	yes			
Substitution Listing	none	none	none			
Execution of Bid Form	yes	yes	yes			
Base Bid Price	949,000	794,000	787,300			
Add Alternate 1	35,000	35,500	33,750			
Add Alternate 2	75,000	66,500	64,500			
Total Bid	1,059,000	896,000	885,550	0	0	0

I certify that the above bids were received sealed and were publicly opened and read aloud at the time and place indicated and that this is a true and correct tabulation of all bids received for this project.

Nick Lowe, RLA

Typed/Printed Name and Title of Architect or Engineer



Signature
10-25-23

Date



Parks and Recreation
105 Gilead Road, Suite 300
Huntersville, NC 28078
(704) 766-2220

CONTRACT FOR CONSTRUCTION SERVICES

CONTRACTOR: **Hoss Contracting, Inc.**

PO BOX 968
Monroe, NC 28111

Hoss Hinson

hoss@hosscontracting.com

PROJECT: **North Mecklenburg Park**
Splash Pad
SITE **16131 Old Statesville Road**
LOCATION(S): **Huntersville, NC 28078**

This Contract for Construction and Repair, and all exhibits, (collectively this "Contract") is entered into this _____ day of _____, 20____ by and between the Town of Huntersville, a municipal corporation of the State of North Carolina, (the "Town") and **Hoss Contracting, Inc.** located at **PO BOX 968 Monroe, NC 28111** (the "Contractor").

WITNESSETH:

That for and in consideration of the mutual promises set forth in this Contract, the sufficiency of which is acknowledged by the parties hereto, the parties do mutually agree as follows:

1. Scope of Services. The Contractor agrees to perform for the Town the services according to the following construction design drawings, plans, and specifications, which is incorporated herein by reference as Exhibit C. The Contractor agrees to provide the labor, service, equipment, and materials, and other services included in Exhibit C, which shall constitute the "Work." The Contractor warrants that the Contractor has visited the location of the project and is familiar with all field conditions bearing upon the Contractor's performance of the Work; that the materials and equipment furnished under the Contract are of good quality and new (unless otherwise permitted); that the Work meets or exceeds the standards ordinarily observed in the industry; and that the Work conforms to the requirements of the Contract and to all applicable codes, ordinances, laws, or regulations. The Contractor further warrants and promises that the Work shall be free from defects and nonconformities in materials and workmanship for a period of one year from the later of the "Date of Completion" or such date as the Contractor actually completes all the Work. During such period, the Contractor will remedy at Contractor's expense any nonconformities or defects in the Work within a reasonable time after receiving notice thereof from the Town.
2. Fees: Fees for the Work shall be specified in a fee schedule attached hereto as Exhibit D, (the "Contract Price").
3. Change Orders. The Contractor agrees that the Town may order changes to the general scope of the Work, including additions, deletions, and similar revisions ("Change Orders"). The parties agree to adjust the Contract Price to reflect the effects of such changes. These changes shall be authorized

only upon execution of a written Change Order. The amount of any increase or decrease in the Contract Price shall be by mutual acceptance of a total amount supported by sufficient data and information to substantiate the change. If the Town and Contractor do not mutually agree on the amount of the change in the Contract Price, the Contractor will proceed with the Work described in the Change Order and the Town will pay the reasonable costs of any additional work as determined by the Town, including a reasonable amount for the Contractor's overhead and profit. Any decrease in Contract Price for a decrease in the Work will be the reasonable costs of the Work deleted as determined by the Town, including a reasonable amount for the decrease in the Contractor's overhead. The Contractor may submit claims for an increase in the Contract Price or an extension of the Date of Completion by means of a written Change Request. The Contractor agrees to submit the Change Request within a reasonable time after the event giving rise to the requested change and before the Contractor undertakes any additional work. Upon receipt of a Change Request, the Town, at its sole discretion, shall inform the Contractor whether to proceed with the additional work and shall approve any adjustment in the Contract Price or Date of Completion by issuing a Change Order as provided above. The timely submission of a written Change Request shall be a condition precedent to the issuance of a Change Order, and the Town will have no obligation to pay the Contractor for additional work performed by the Contractor without a Change Order approved in writing by the Town.

4. Historically Underutilized Businesses (HUB). It is the policy of the Town of to provide minorities and women equal opportunity for participating in all aspects of the Town's contracting and procurement programs, including but not limited to employment, construction development projects, materials/services contracts and/or lease agreements, consistent with the laws of the State of North Carolina.
5. Personal Protective Equipment (PPE). The Contractor and his/her employees will wear the proper equipment such as, but not limited to, high visibility clothing, safety glasses, hearing protection, etc. at all times when performing the Work at the Site Location(s). Failure to be in the appropriate PPE will result in removal from the project site.
6. Contract Insurance. Contractor shall be required to purchase and maintain, during its performance under this Contract, insurance coverage as shown on the Insurance Requirements as stated in Exhibit B, which is incorporated herein by reference. All insurance purchased shall have a specific endorsement, copy of which shall be provided to the Town, naming the Town as an additional insured and providing that such insurance will not be cancelled without providing thirty (30) days advance written notice to the Town.
7. Working Drawings and Specifications at the Job Site. The Contractor shall maintain, in readable condition at his job site one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the owner, designer, or his authorized representative. The Contractor shall also maintain at the job site, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on Project drawings by the Contractor and submitted to the designer upon Project completion and no later than 30 days after acceptance of the Project.
8. Materials, Equipment, Employees. The Contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of the work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

9. Cleaning Up and Restoration of Site. The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the Project, the Contractor shall thoroughly clean the sites, and completely prepare the Project and site for use by the Owner. At the end of construction, the Contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs, and other elements shall be repaired, cleaned, or otherwise restored to their original state.
10. Protection of Work, Property, the Public, and Safety. The Contractor shall be solely responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. The Contractor shall be responsible for any damage to the owner's property or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. The Contractor shall be responsible for and pay for any damages caused to the owner.
11. As-Built Marked-Up Construction Documents. Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.
12. Retainage. Retainage on periodic or final payments on public construction contracts in which the total project costs are \$100,000 or more are allowed pursuant to N.C.G.S. § 143-134.1.
13. Addendums: If applicable, Contractor acknowledges that it has received, executed, and shall abide by any addendums issued by the Town prior to this Contract.
14. Standard Terms and Conditions. The Standard Terms and Conditions, attached hereto as Exhibit A, shall be a part of this Contract. The Standard Terms and Conditions are hereby incorporated by reference, and all parties agree to be bound thereby.
15. Contract Term. Work will begin within ten (10) days of receipt of the Notice to Proceed from the Town. The Contractor and the Town recognize that time is of the essence for completion of the Work. Any Notice to Proceed shall also contain a date that the Contractor shall complete the Work by (the "Date of Completion"). The terms of this Contract shall apply to every Notice to Proceed issued by the Town. The Contractor shall complete all necessary phases of construction in order to substantially complete the base bid work within **140 consecutive calendar days**. This time of construction shall be defined as the Contract Period.
16. Liquidated Damages. Contractor and Town recognize that time is of the essence and that Town will suffer financial and other losses if the Work is not completed by the Date of Completion, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Town if the Work is not completed on time. Accordingly, instead of requiring any such proof, Town and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Town **\$500** for each day that expires after the end of the Date of Completion (as duly adjusted pursuant to the Contract) until the Work is complete.
17. Payment for Work In consideration of the above Work, the Town will pay the Contractor the sum as further described on Exhibit D.

In witness thereof, the contracting parties, by their authorized agents, affix their signatures and seals at Huntersville, North Carolina, this _____ day of _____, 20____.

Contractor

Town of Huntersville

Name:

Name of Contractor (type or print)

Town Manager

By:

(Signature)

Attest: _____
Town Clerk

Title:

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act

Attest:

(Secretary, if a corporation)

Finance Director

EXHIBIT A
STANDARD TERMS & CONDITIONS

1. **Acceptance.** Contractor's acknowledgment of the terms of this Contract constitutes an agreement to: (i) all terms and conditions set forth or referenced herein, (ii) on any attachments hereto, (iii) any applicable solicitation documentation related to this Contract (including without limitation any request for proposals or invitation for bids or Contractor's response thereto) that deal with the same subject matter as this Contract, and (iv) any other terms and conditions of a written agreement signed by Contractor and the Town that deals with the same subject matter as this Contract (collectively, the "Contract Documents"). The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Contractor and the Town with respect to the purchase by the Town of the: (i) goods ("Goods") and/or (ii) services provided or work performed ("Services") as described in the Contract Documents. The agreements set forth in the Contract Documents are sometimes referred to herein as the "Contract." In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to the Town shall control. No additional or supplemental provision or provisions in variance herewith that may appear in Contractor's quotation, acknowledgment, invoice, or in any other communication from Contractor to the Town shall be deemed accepted by or binding on the Town. The Town hereby expressly rejects all such provisions which supplement, modify, or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until the Town's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by the Town are subject to correction.
2. **Entire Agreement.** These terms and conditions and any other specifications contained in any other documents referenced shall constitute and represent the complete and entire agreement between the Town and Contractor and supersede all previous communications, either written or verbal with respect to the subject matter of this Contract.
3. **Changes, Additions, Deletions.** No changes, additions, deletions, or substitutions of scope of work, specifications, terms and conditions, quantity, unit of issue, delivery date, delivery charges or price will be permitted without the prior written approval from the Town.
4. **Relationship of the Parties.** The Contractor is an independent contractor and not an employee of the Town. The conduct and control of the work will lie solely with the Contractor. The Contract shall not be construed as establishing a joint venture, partnership, or any principal-agent relationship for any purpose between the Contractor and the Town. Employees of the Contractor shall remain subject to the exclusive control and supervision of the Contractor, which is solely responsible for their compensation.
5. **Prices.** If Contractor's price or the regular market price of any of the Goods or Services covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods or performance of such Services, Contractor agrees to give the Town the benefit of such lower price on any such Goods or Services. In no event shall Contractor's price be higher than the price last quoted or last charged to the Town unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
6. **Taxes.** Any applicable taxes shall be invoiced as a separate item.
7. **Substitutions.** No substitutions or cancellations shall be permitted without prior written approval from the Town.
8. **Indemnification.** To the greatest extent allowed by North Carolina law the Contractor shall indemnify and hold harmless the Town, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses (including expenses of litigation and attorneys'

fees), and attorneys' fees ("Claims"). In the event that any portion of the Work performed under the Contract shall be defective in any respect whatsoever, the Firm shall indemnify and save harmless the Town, its officers, agents, employees, and assigns from and against all Claims as defined herein, but only to the extent allowed by law.

Nothing contained in this Contract shall waive the Constitutional limitation on the Town indemnifying obligations of other parties.

9. **Invoices and Payment Terms.** It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing that does not comply with this provision will subject the Contract to cancellation. Upon satisfactory delivery of the Goods or satisfactory completion of the Work, all invoices and statements shall reference the Contract number and be submitted to: Town of Huntersville, Accounts Payable, PO Box 664, Huntersville, North Carolina, 28070. Payment terms are Net 30 days after receipt of correct, undisputed invoice or acceptance of Goods or Services, whichever is later.

When the Contract is for construction services, the Contractor will submit monthly Requests for Payment for Work performed, for review. The Request for payment shall be based upon the Contractor's estimate of the percentage of the total Work completed during the period represented on the Request for Payment. The Contractor must certify that the Work represented in the Contractor's Request for Payment has been completed in accordance with the Contract Documents and certify that the Request for Payment is appropriate for payment before the Town shall be obligated to make such payment to the Contractor. If any Request for Payment is disputed by the Town, in whole or in part, the Town shall provide a written explanation for such dispute to Contractor within five days of receipt of the certified Request for Payment and shall pay all undisputed amounts therein.

10. **Anti-Discrimination and Equal Employment.** During the performance of the Contract, Contractor shall comply with all federal and state requirements concerning fair and equal employment and shall not discriminate against or deny the Contract's benefits to any person on the basis of race, religion, color, creed, national origin, age, sex (including sexual orientation, gender identity, and pregnancy), disability or handicapping condition, or genetic information.
11. **Insurance.** The Contractor shall provide the insurance coverages shown on Exhibit B, attached hereto and incorporated herein by reference. The Contractor shall provide the Town with a North Carolina Certificate of Insurance and such endorsements as may be required by the Contract Documents prior to the commencement of any work under the Contract and agrees to maintain such insurance until the completion of the Contract. Such certificates of insurance shall be considered part of the Contract.
12. **Ethics in Public Contracting.** By submitting their prices and acceptance of this Contract, all Contractors certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other supplier, manufacturer, or subcontractor in connection with their offer, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
13. **Applicable Laws and Courts.** All Town Contracts shall be governed in all respects by the laws of the State of North Carolina. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation, and enforcement of the Contract, shall be governed in all respects by the laws of the State of North Carolina and venue shall be proper only in a court of competent jurisdiction located in Mecklenburg County, North Carolina. The Contractor represents and warrants that it shall comply with all applicable federal, state, and local laws, regulations, and orders, including, not limited to, licensure requirements.

14. **Codes and Permits.** When applicable, the Contractor shall obtain all required permits, give all required notices, and comply with all laws, ordinances, codes, rules, and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules, and regulations, and without such notice to the Town, Contractor shall bear all cost arising therefrom.
15. **License Requirement.** If applicable, the Contractor must be a licensed General Contractor as required by North Carolina General Statutes Section 87-1 and must have a good ethical and professional standing with the North Carolina General Contractor's Licensing Board. The Contractor will be responsible for providing properly qualified, licensed (if required) personnel to complete the Work in accordance with the standard of care ordinarily used by members of the Contractor's profession practicing under similar circumstances and at the same time in Mecklenburg County.
16. **Strict Compliance.** The Town may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.
17. **Assignment.** Contractor may not assign, pledge, or in any manner encumber Contractor's rights under this Contract or delegate the performance of any of its obligations hereunder, without Town's prior, express written consent.
18. **General Provisions.** The Town's remedies as set forth herein are not exclusive. Any delay or omission by the Town in exercising any right hereunder, or any waiver by the Town of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default.
19. **Warranties.** The Contractor warrants it shall adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town in the performance of the Work outlined in this Contract and any attached specifications. Contractor warrants that any finished Work completed hereunder shall also adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town. Contractor warrants that all Work delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance, or payment by the Town for the Work and shall run to the Town and any user of the Work. Contractor warrants that all Work will be performed in a professional and workman like manner in accordance with best industry practices. This express warranty is in addition to Contractor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or in equity, the Town shall be entitled to consequential and incidental damages.
20. **Quality and Workmanship.** All Work shall be performed to the satisfaction of the Town. The Work shall not be considered complete nor applicable payments rendered until the Town is satisfied with the Work provided.
21. **Default.** The Town may terminate the Contract, in whole or in part, immediately and without prior notice upon breach of the Contract by the Contractor. In addition to any other remedies available to the Town in law or equity, the Town may procure upon such terms as the Town shall deem appropriate, Work substantially similar to those so terminated, in which case the Contractor shall be liable to the Town for any excess costs for such similar supplies or services and any expenses incurred in connection therewith.

22. **Termination for Convenience.** The Town shall have the right, without assigning any reason therefore, to terminate any Work under the Contract, in whole or in part, at any time at its complete discretion by providing 10 days' notice in writing from the Town to Contractor. If the Contract is terminated by the Town in accordance with this paragraph, the Contractor will be paid in an amount which bears the same ratio to the total compensation as does the Work actually delivered or performed to the total originally contemplated in the Contract. The Town will not be liable to the Contractor for any costs for materials acquired or contracted for if such costs were incurred prior to the date of this Contract.
23. **Risk of Loss.** Risk of Loss for all supplies, materials, the Work performed, and the Project as it is being constructed, shall be on the Contractor until such time as substantial completion is achieved, and approved by the Town.
24. **No Third-Party Beneficiaries.** There shall be no intended nor incidental third-party beneficiaries of this Contract. Contractor shall include in all contracts, subcontracts, or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third-party beneficiaries.
25. **Exclusivity.** Nothing in this Contract shall require the Town to use the Contractor or prohibit the Town from soliciting third parties for the good or services provided in this Contract.
26. **Confidentiality.** The Contractor acknowledges the Town is subject public records law and no term shall be inconsistent with N.C.G.S. §132 et al.
27. **Valid Contract for Services.** In order for a Contract for Services of the Town to be valid, it must be executed by the Town Manager or his or her authorized designee and must be pre-audited in that manner required by the Local Government Budget and Fiscal Control Act, as the same may be amended.
28. **Verification of Work Authorization.** Contractor shall comply with, and require all contractors and subcontractors to comply with, the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes, "Verification of Work Authorization," sometimes known as E-verify, for all contractors and subcontractors.
29. **Iran Divestment List.** With the execution hereof, Contractor, certifies that they are not on the Iran Final Divestment List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.58, and will not contract with anyone on such List in performance of the work hereunder.
30. **Availability of Funds.** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the Town for the purpose set forth in this agreement.
31. **Severability.** If any provision of this Contract is found to be invalid or unlawful, then remainder of this Contract shall not be affected thereby, and each remaining provision shall be valid and enforced to the fullest extent permitted by law.
32. **Companies that Boycott Israel.** With the execution hereof, Contractor, certifies that they are not on the Companies that Boycott Israel List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.80, and will not contract with anyone on such List in performance of the work hereunder.
33. **Governmental Immunity.** Nothing contained in this Contract shall constitute a waiver of the Town's governmental immunity or of any limitation on liability or damages created by law.

EXHIBIT B
MINIMUM INSURANCE REQUIREMENTS

The Work under this Contract shall not commence until the Contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the Town. Except for Worker's Compensation and Professional Liability policies, the Town shall be named as additional insured on all policies. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the Town of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. Worker's Compensation and Employer's Liability

The Contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of \$1,000,000.

b. Comprehensive General Liability Insurance

The Contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the Contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury: \$1,000,000 per occurrence/\$2,000,000 aggregate
Professional Liability: \$1,000,000 per occurrence/\$2,000,000 aggregate
Property Damage: \$1,000,000 per occurrence/\$2,000,000 aggregate

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the Work performed under the contract.

c. Deductible

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the Contractor.

d. Other Insurance

The Contractor shall obtain such additional insurance as may be required by the Town or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

e. **Proof of Carriage**

The Contractor shall furnish the Town with satisfactory proof of carriage of the insurance required before written approval is granted by the Town.

EXHIBIT C – PLANS AND SPECIFICATIONS

(see attached plans and specs)

EXHIBIT D – FEE SCHEDULE

<u>Base Bid Total:</u>	<u>\$787,300.00</u>
<u>Alternate No.1:</u>	<u>\$33,750.00</u>
<u>Alternate No. 2:</u>	<u>\$64,500.00</u>
<u>Total Bid:</u>	<u>\$885,550.00</u>

Unit Prices

Undercut of Unsuitable Soils	\$60 per CY
Mass Rock Removal:	\$400 per CY
Trench Rock as removal:	\$500 per CY

Company Name

Date

Print Name

Title

Signature

BID PROPOSAL

SINGLE PRIME GENERAL CONSTRUCTION CONTRACT BID PROPOSAL

NORTH MECKLENBURG PARK SPLASH PAD

ALTERING THE FACE OF THIS FORM IN ANY MANNER, OR PROVIDING INFORMATION NOT SPECIFICALLY REQUESTED SHALL RENDER THIS BID PROPOSAL NON-RESPONSIVE AND INELIGIBLE FOR CONSIDERATION BY THE TOWN.

Date: October 17, 2023

TO: Town of Huntersville, North Carolina

To Whom It May Concern:

The undersigned Bidder, having examined carefully the site, the Invitation to Bid, Instructions to Bidders, Construction Drawings, the form Construction Agreement, Supplementary Documents (if any) and subsequent Addenda (as acknowledged herein) for the construction of a splash pad and pedestrian hardscape areas with associated demolition/clearing, grading, erosion control, installation of utilities, stormwater conveyance measures, and landscaping. Bidder hereby proposes to furnish all labor, materials, equipment, and services necessary to perform the Work required in the Construction Documents and terms of this Proposal for the amounts listed below.

Base Bid Total: \$ 781,300
(Lump Sum)

Town reserves the right to award contract based on Base Bid only, or combination of Base Bid and any/all of the Alternate Bid Items below. The Bidder shall indicate if the Alternate is an add or deduct for the overall bid. If the Alternate is left blank, then the Alternate will not change the Base Bid if accepted. The Bidder agrees to provide the Alternates as described in the Contract Documents for the following prices:

Alternate #1 – Two Additional Cantilevered Shade Sails: Add \$ 33,750 (Lump Sum)
Alternate #2 – Splash Pad Specialty Surface: Add \$ 64,500 (Lump Sum)

Unit Prices		
Description	Unit	Unit Price
Undercut of Unsuitable Soils	CY	<u>60</u>
Mass Rock Removal as describe in	CY	<u>400</u>
Trench Rock as Removal	CY	<u>500</u>
Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.		

The undersigned further agrees that this Bid Proposal shall be valid for a period of sixty (60) days from the date of receipt of the Bid Proposal and that if this Bid Proposal is accepted by the Town within this period, the Bidder will execute the Construction Agreement provided as part of the Contract Documents.

The undersigned further agrees to begin the work promptly upon receipt of the Notice to Proceed and to pursue the work with an adequate work force to complete the work within 120 calendar days from receipt of the Notice to Proceed. Liquidated Damages of \$500.00 per calendar day are hereby agreed upon as an assessment from the Contractor for failure to complete the work within the time period stated herein.

The undersigned Bidder further proposes and agrees to commence the work promptly upon notice, with an adequate force to satisfactorily complete the Project.

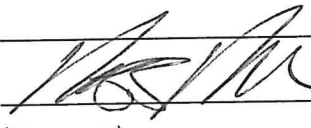
The undersigned acknowledges receipt of the following addenda which will be considered as part of the Contract Documents.

Addendum No. 1 Dated 9-29-23
Addendum No. 2 Dated 10-13-23
Addendum No. _____ Dated _____

CONTRACTOR: Hoss Contracting, Inc.
(Company)

Contractor ☐ is or ☒ is not a historically underutilized business, registered with the North Carolina Office of Historically Underutilized Businesses. (Must be completed by all Bidders.)

ADDRESS: PO Box 968
Monroe, NC 28111

BY:  Hoss Hinson
(Signature) (Typed Name)

TITLE: President

NC General Contractor's License No. 77611

NC State Sales and Use Tax Registration 601139491

☒ Non-collusion Affidavit has been completed and is attached to this Bid Proposal Form (Required)
Note: Inclusion of the non-collusion affidavit is mandatory. A bid will be rejected as non-responsive if not included in the bid submission.

Select One (one or the other must be chosen by the Bidder):

☐ Substitution Listing (if substitutions are being proposed) is attached to this Bid Proposal Form.
Note: Failure to include the Substitution Listing with this Bid Proposal will render the substitutions ineligible for consideration by the Town.

OR

☒ Substitution Listing is not attached to this Bid Proposal Form (No substitutions are proposed.)

Standard Form Contract
NON-COLLUSION AFFIDAVIT

I, on behalf of the Bidder, being first duly sworn or as the Contractor, do hereby represent on behalf of the Bidder that the Bid Proposal submitted was made without collusion or fraud and that neither I, nor anyone else affiliated with the Bidder to my knowledge, have offered or received any kickbacks or inducements from any other supplier, manufacturer or subcontractor in connection with their Bid Proposal, and neither I, nor anyone else affiliated with the Bidder to my knowledge, have conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

This the 17th day of October, 2023.

BIDDER: Hoss Contracting, Inc.



Print Name: Hoss Hinson

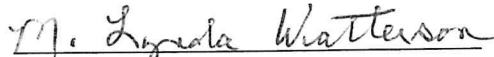
Print Title: President

State of North Carolina

County of Union

Sworn to or subscribed before me this the 17th day of October, 2023.

(Official Seal)



Notary Public

Print Name: M. Lynda Watterson

QUALIFICATION REQUIREMENTS FORM

In order to be considered for this project, the Contractor must meet the following minimum qualification requirements

- A. The companying bidding on the project shall have been in business for at least 5 years, and been the prime contractor, and have performed similar types of splash pad projects.
- B. Be a licensed North Carolina General contractor.
- C. Company and/or principals of firm must not have been assessed liquidated damages on similar type of projects in the past 3 years.
- D. Be capable of providing performance and payment bonds as specified in the contract.
- E. Be able to provide the insurance required by the Contractor and all the subcontractors that will be on site.
- F. Provide at least three (3) splash pad projects completed by the Contractor with reference names and phone numbers.

I have read and understand all sections of the Bidder's Qualifications. This page must be submitted with bid.

Signed By: _____

Title: (Owner, Partner or Corporate President or Vice President only) President



Mailing Address: PO Box 968 Monroe, NC 28111
Physical Address: 4524 Highway 74 East Wingate, NC 28174
704-233-0488* 888-593-2036* www.hosscontracting.com

Splash Pad Reference List

Project:

City Of Monroe
Monroe Aquatics & Fitness Center
Monroe Aquatic Water Park
2325 Hanover Drive
Monroe, North Carolina 28110
Kathy Henderson
704-282-4500

Architect:

Ramsay, Burgin, Smith Architects, Inc.
225 N. Main St., Suite 501
Salisbury, NC 28144
Donna Smith
704-633-3121

THE CINCINNATI INSURANCE COMPANY

Bid Bond

CONTRACTOR (Name, legal status and address):

Hoss Contracting, Inc.
P.O. Box 968
Monroe, NC 28111

SURETY (Name, legal status and principal place of business):

THE CINCINNATI INSURANCE COMPANY
6200 S. GILMORE ROAD
FAIRFIELD, OHIO 45014-5141

OWNER (Name, legal status and address):

Town of Huntersville
105 Gilead Road, 3rd Floor
Huntersville, NC 28078

BOND AMOUNT:

Five Percent of the Amount Bid (5% of Bid)

This document has important legal consequences. Consultation with an attorney is encouraged with respect to its completion or modification.

Any singular reference to Contractor, Surety, Owner or other party shall be considered plural where applicable.

PROJECT (Name, location or address, and Project number, if any):

North Mecklenburg Park Splash Pad Project
16131 Old Statesville Road, Huntersville, NC 28078

Project Number, if any:

The Contractor and Surety are bound to the Owner in the amount set forth above, for the payment of which the Contractor and Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, as provided herein. The conditions of this Bond are such that if the Owner accepts the bid of the Contractor within the time specified in the bid documents, or within such time period as may be agreed to by the Owner and Contractor, and the Contractor either (1) enters into a contract with the Owner in accordance with the terms of such bid, and gives such bond or bonds as may be specified in the bidding or Contract Documents, with a surety admitted in the jurisdiction of the Project and otherwise acceptable to the Owner, for the faithful performance of such Contract and for the prompt payment of labor and material furnished in the prosecution thereof; or (2) pays to the Owner the difference, not to exceed the amount of this Bond, between the amount specified in said bid and such larger amount for which the Owner may in good faith contract with another party to perform the work covered by said bid, then this obligation shall be null and void, otherwise to remain in full force and effect. The Surety hereby waives any notice of an agreement between the Owner and Contractor to extend the time in which the Owner may accept the bid. Waiver of notice by the Surety shall not apply to any extension exceeding sixty (60) days in the aggregate beyond the time for acceptance of bids specified in the bid documents, and the Owner and Contractor shall obtain the Surety's consent for an extension beyond the sixty (60) days.

If this Bond is issued in connection with a subcontractor's bid to a Contractor, the term Contractor in this Bond shall be deemed to be Subcontractor and the term Owner shall be deemed to be Contractor.

When this Bond has been furnished to comply with a statutory or other legal requirement in the location of the Project, any provision in this Bond conflicting with said statutory or legal requirement shall be deemed deleted herefrom and provisions conforming to such statutory or other legal requirements shall be deemed incorporated herein. When so furnished, the intent is that this Bond shall be construed as a statutory bond and not as a common law bond.

Signed and sealed this 17th day of October 2023

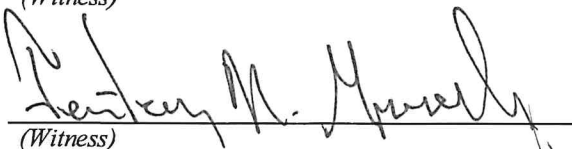

(Witness)

Hoss Contracting, Inc.

(Principal)

(Seal)

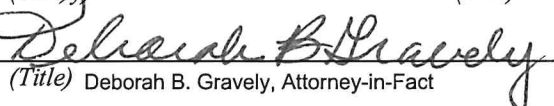
(Title) Hoss Hinson, President


(Witness)

THE CINCINNATI INSURANCE COMPANY

(Surety)

(Seal)


(Title) Deborah B. Gravely, Attorney-in-Fact

THE CINCINNATI INSURANCE COMPANY
THE CINCINNATI CASUALTY COMPANY

Fairfield, Ohio

POWER OF ATTORNEY

KNOW ALL MEN BY THESE PRESENTS: That THE CINCINNATI INSURANCE COMPANY and THE CINCINNATI CASUALTY COMPANY, corporations organized under the laws of the State of Ohio, and having their principal offices in the City of Fairfield, Ohio (herein collectively called the "Companies"), do hereby constitute and appoint

Robert C. Boyd; Deborah B. Gravely; Catherine G. Palmer; Harvey E. Brown, Jr.; Whiteney V. Durepo;
Amy R. Riffe; Amy J. Zigler and/or Brandi G. Nyang

of Charlotte, North Carolina

their true and legal Attorney(s)-in-Fact, each in their separate capacity if more than one is named above, to sign, execute, seal and deliver on behalf of the Companies as Surety, any and all bonds, policies, undertakings or other like instruments, as follows:

Any such obligations in the United States, up to
Twenty Million and No/100 Dollars (\$20,000,000.00).

This appointment is made under and by authority of the following resolutions adopted by the Boards of Directors of The Cincinnati Insurance Company and The Cincinnati Casualty Company, which resolutions are now in full force and effect, reading as follows:

RESOLVED, that the President or any Senior Vice President be hereby authorized, and empowered to appoint Attorneys-in-Fact of the Company to execute any and all bonds, policies, undertakings, or other like instruments on behalf of the Corporation, and may authorize any officer or any such Attorney-in-Fact to affix the corporate seal; and may with or without cause modify or revoke any such appointment or authority. Any such writings so executed by such Attorneys-in-Fact shall be binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company.

RESOLVED, that the signature of the President or any Senior Vice President and the seal of the Company may be affixed by facsimile on any power of attorney granted, and the signature of the Secretary or Assistant Vice-President and the Seal of the Company may be affixed by facsimile to any certificate of any such power and any such power of certificate bearing such facsimile signature and seal shall be valid and binding on the Company. Any such power so executed and sealed and certified by certificate so executed and sealed shall, with respect to any bond or undertaking to which it is attached, continue to be valid and binding on the Company.

IN WITNESS WHEREOF, the Companies have caused these presents to be sealed with their corporate seals, duly attested by their President or any Senior Vice President this 16th day of March, 2021.



STATE OF OHIO)SS:
COUNTY OF BUTLER)

THE CINCINNATI INSURANCE COMPANY
THE CINCINNATI CASUALTY COMPANY

Stephen A. Ventre

On this 16th day of March, 2021 before me came the above-named President or Senior Vice President of The Cincinnati Insurance Company and The Cincinnati Casualty Company, to me personally known to be the officer described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of said Companies and the corporate seals and the signature of the officer were duly affixed and subscribed to said instrument by the authority and direction of said corporations.



Keith Collett
Keith Collett, Attorney at Law
Notary Public - State of Ohio

My commission has no expiration date.
Section 147.03 O.R.C.

I, the undersigned Secretary or Assistant Vice-President of The Cincinnati Insurance Company and The Cincinnati Casualty Company, hereby certify that the above is the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Power of Attorney is still in full force and effect.

Given under my hand and seal of said Companies at Fairfield, Ohio, this 17th day of October, 2023.



Ed H

NORTH MECKLENBURG PARK SPLASH PAD

16131 OLD STATESVILLE ROAD
HUNTERSVILLE, NC 28078

CONSTRUCTION DOCUMENTS

PROJECT NUMBER: HUN-22003

DATE: JULY 28, 2023

SHEET INDEX

1-1	TOPOGRAPHIC SURVEY
C0.00	GENERAL NOTES
C1.01	DEMOLITION PLAN
C2.00	SPLASH PAD SITE PLAN
C2.01	SPLASH PAD LAYOUT PLAN
C3.00	GRADING PLAN
C3.01	DRAINAGE AREA MAP
C4.00	UTILITY PLAN
C6.00	EROSION & CONTROL PLAN STAGE I
C6.01	EROSION & CONTROL PLAN STAGE II
C6.02	EROSION & SEDIMENT CONTROL DETAILS
C8.00	SITE DETAILS
C8.01	WATER DETAILS
C8.02	SANITARY SEWER DETAILS
C8.03	STORM DETAILS
L4.00	HARDSCAPE DETAILS
L5.00	LANDSCAPE PLAN
L5.01	ADD-ALTERNATE LANDSCAPE PLAN
L5.02	LANDSCAPE NOTES AND DETAILS

ELECTRICAL

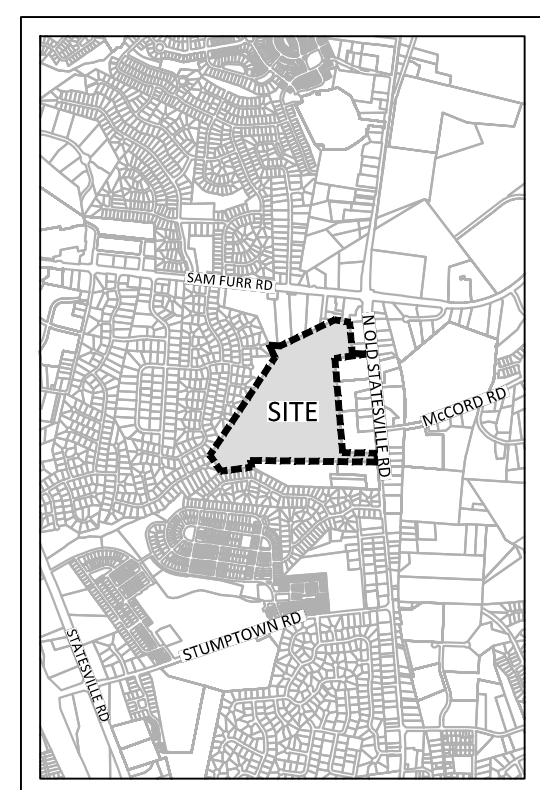
E001	ENLARGED ELECTRICAL SITE PLAN
E101	ELECTRICAL SITE PLAN
E102	ENLARGED ELECTRICAL SITE PLAN

SPLASH PAD

PL100	OVERALL AQUATIC PLAN
PL110	POOL A - SPLASH PAD PLANS
PL111	POOL A - SPLASH PAD FEATURE DIMENSION PLAN
PL112	POOL A - SPLASH PAD SECTIONS AND DETAILS

PL200	STRUCTURAL NOTES, PLAN(S) AND SCHEDULE
PL210	STRUCTURAL DETAILS

PL300	OVERALL PIPING PLAN
PL301	MECHANICAL NOTES



VICINITY MAP
N.T.S.



McADAMS

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phone 704. 527. 0800
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license number: C-0293, C-187

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CONTACT

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nlowe@mcadamsco.com
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CLIENT

TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541

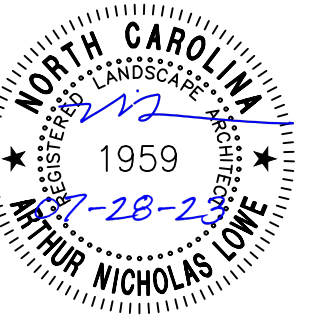
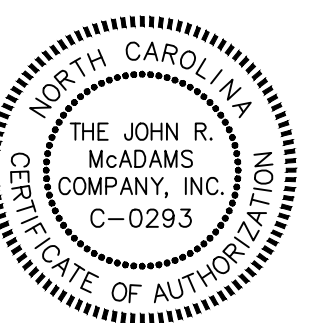


PROJECT DIRECTORY

ARCHITECT
ADAMS + ASSOCIATES ARCHITECTURE
126 NORTH MAIN STREET
MOORESVILLE, NC 28115
PHONE: 704. 664. 1311

SPLASH PAD CONSULTANT
WATER TECHNOLOGY, INC.
100 PARK AVENUE, PO BOX 614
BEAVER DAM, WI 53916
PHONE: 920. 887. 7375

ELECTRICAL ENGINEER
LABELLA ASSOCIATES
400 SOUTH TRYON STREET, STE 1300
CHARLOTTE, NC 28285
PHONE: 704. 376. 6423



REVISIONS

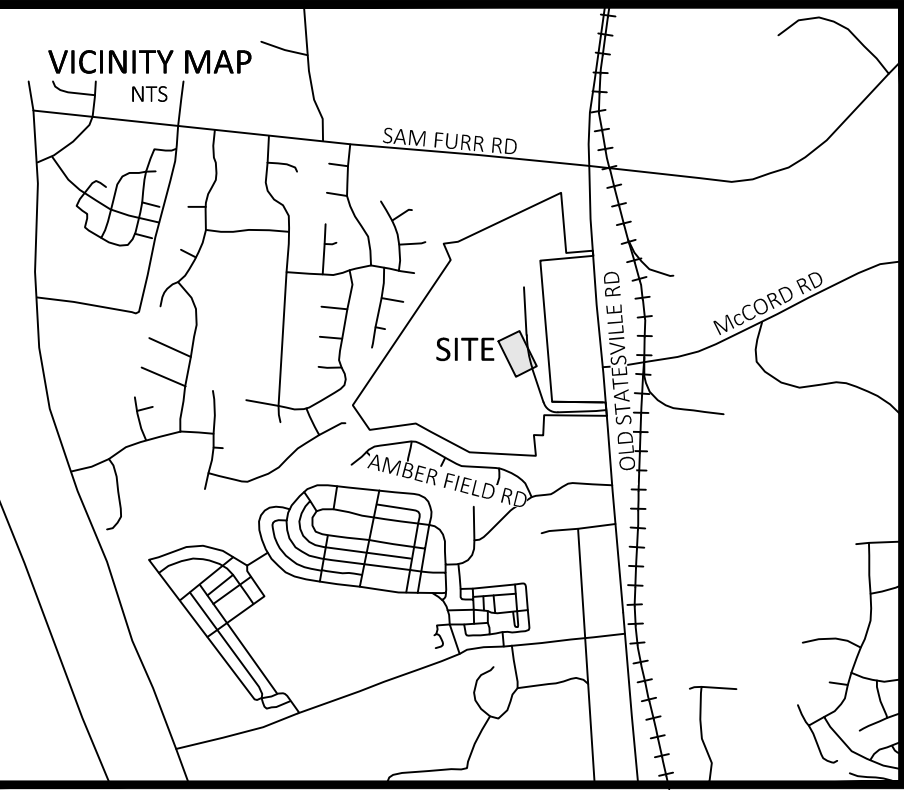
NO. DATE

CONSTRUCTION DOCUMENTS FOR:

NORTH MECKLENBURG PARK
SPLASH PAD

HUNTERSVILLE, NC 28078
PROJECT NUMBER: HUN-22003

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



LEGEND

- EXISTING IRON PIPE/REBAR
 - IRON PIPE SET
 - EXISTING CONCRETE MONUMENT
 - CONCRETE MONUMENT SET
 - CALCULATED POINT
 - SANITARY SEWER MANHOLE
 - SANITARY SEWER CLEANOUT
 - WATER VALVE
 - WATER METER
 - BACKFLOW PREVENTER
 - FIRE HYDRANT
 - ELECTRIC BOX/METER
 - AIR CONDITIONING UNIT
 - LIGHT POLE
 - POWER POLE WITH GUY ANCHOR
 - CURB INLET
 - STORM DRAINAGE MANHOLE
 - YARD INLET
 - FLARED END SECTION
 - BOLLARD
 - SIGN
-
- SD STORM DRAIN
 - OU OVERHEAD UTILITY LINE
 - UE UNDERGROUND ELECTRIC
 - FO UNDERGROUND COMMUNICATIONS LINE
 - W WATER LINE
 - SS SANITARY SEWER LINE
 - G GAS LINE
 - X FENCE LINE
 - SURVEYED PROPERTY LINE
 - PROPERTY LINE NOT SURVEYED

I, KEVIN S. BAUCOM, PLS, CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION AND THE FOLLOWING INFORMATION WAS USED TO PERFORM THE SURVEY:

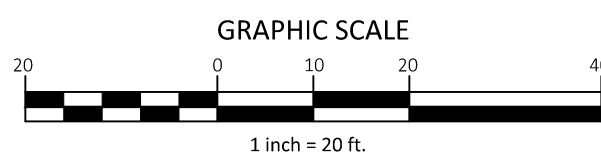
- (1)CLASS OF SURVEY: CLASS A
- (2)POSITIONAL ACCURACY: < 0.100'
- (3)TYPE OF GPS FIELD PROCEDURE: VRS
- (4)DATE OF SURVEY: 11/30/2021
- (5)DATUM/EPOCH: NAD 83(2011)
- (6)PUBLISHED/FIXED CONTROL USED: NCMO
- (7)GEOID MODEL: GEOID12A
- (8)COMBINED GRID FACTOR(S): 0.99983992
- (9)UNITS: METERS CONVERTED TO US SURVEY FEET

I CERTIFY THAT THIS MAP WAS DRAWN UNDER MY SUPERVISION FROM AN ACTUAL SURVEY MADE UNDER MY SUPERVISION FROM DEED DESCRIPTION RECORDED IN BOOK AND PAGE SHOWN; THAT THE BOUNDARIES NOT SURVEYED ARE INDICATED AND DRAWN FROM INFORMATION FOUND IN BOOK AND PAGE SHOWN; THAT THE RATIO OF PRECISION IS GREATER THAN 1:10,000; AND THAT THIS MAP MEETS THE REQUIREMENTS OF THE STANDARDS OF PRACTICE FOR LAND SURVEYING IN NORTH CAROLINA (21 NCAC 56.1600).

THIS ____ DAY OF _____, 20__.

KEVIN S. BAUCOM, PLS L-4275

PRELIMINARY
NOT FOR RECORDATION,
CONVEYANCES OR SALES



GENERAL NOTES

- 1.) THIS IS A SURVEY OF PORTIONS OF EXISTING PARCELS. THIS IS A TOPOGRAPHIC AND LOCATION SURVEY.
- 2.) BEARINGS FOR THIS SURVEY ARE BASED ON NC GRID NAD83/2011. SEE CERTIFICATE HEREON.
- 3.) ALL DISTANCES ARE HORIZONTAL GROUND DISTANCES.
- 4.) FLOOD NOTE: THIS PROPERTY IS NOT LOCATED IN A SPECIAL FLOOD HAZARD ZONE. IT IS LOCATED IN ZONE X AS DEFINED BY FEMA F.I.R.M. MAP NUMBER 371064100K DATED 09/02/2015, 3710464200K DATED 09/02/2015, 3710465100K DATED 11/16/2018, AND 3710465200K DATED 11/16/2018.
- 5.) REFERENCES: DB 4680-PG 0656 AND DB 8492, PG 816 OF THE MECKLENBERG COUNTY REGISTRY PIN 00911119 AND 00911130
- 6.) NO GRID MONUMENTS FOUND WITHIN 2000' OF SITE.
- 7.) UTILITY STATEMENT: THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES.
- 8.) LOCATION OF SEWER CLEANOUTS WERE FOUND, BUT LOCATION OF SEWER LINES IS UNKNOWN.



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OWNER

CITY OF HUNTERSVILLE
101 HUNTERSVILLE-CONCORD RD.
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541

NORTH MECKLENBURG PARK
TOPOGRAPHIC SURVEY
16131 OLD STATESVILLE RD
HUNTERSVILLE, MECKLENBURG COUNTY, NC 28078

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-C1
CHECKED BY KSB
DRAWN BY JPM
SCALE 1"=20'
DATE 11.03.2022

SHEET

**TOPOGRAPHIC
SURVEY**

1-1

GENERAL NOTES:

- THIS CONSTRUCTION DOCUMENT SET HAS BEEN CREATED TO ILLUSTRATE THE GENERAL DESIGN INTENT OF THE PROJECT. CONTRACTOR SHALL WORK CLOSELY WITH THE OWNER'S REPRESENTATIVE, PROVIDING NOTIFICATION IF ADDITIONAL INFORMATION IS NEEDED TO PROPERLY CONSTRUCT/INSTALL/BUILD ELEMENTS SPECIFIED HEREIN.
- CONTRACTOR TO PROVIDE THE MOST RECENT CONSTRUCTION DOCUMENT SET TO ALL SUB-ORGANIZED SUBS/RENDERERS TO EMERGENCY, OPERATION, AND MAINTENANCE MANUALS. IT IS THE SUB CONTRACTOR'S RESPONSIBILITY TO REVIEW THE ENTIRE PLAN SET INCLUDING THE MOST RECENT CONTRACT DOCUMENT ADDENDUMS, AMENDMENTS, RE-ISSUES, BULLETIN DRAWINGS, ETC. AND ENSURE THEY HAVE THE NECESSARY INFORMATION TO ACCURATELY SCOPE THE PROJECT FOR THE SUB CONTRACTORS' RESPECTIVE TRADE.

- NOTES ARE PROVIDED FOR CONVENIENCE. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION.

- CONTRACTOR IS ADVISED THAT ADDITIONAL NOTES MAY BE FOUND ON SUBSEQUENT SHEETS OF THE CONSTRUCTION DOCUMENT SET AND THAT SUCH NOTES, WHILE PERTAINING TO THE SPECIFIC DRAWINGS ON WHICH THEY ARE PLACED, SUPPLEMENT THE NOTES LISTED HEREIN. ALL NOTES SHALL BE APPLICABLE TO ALL DRAWINGS.

- DIGITAL BASE FILE SHALL BE MADE AVAILABLE FOR USE IN FIELD LOCATION OF ELEMENTS AND SITE FEATURES. HARDCOPY INFORMATION THAT CONFLICTS SHALL BE BROUGHT TO THE OWNER'S REPRESENTATIVE'S ATTENTION. HARDCOPY INFORMATION SHALL PREVAIL.

- PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY, CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION CONFERENCE. AS DEEMED NECESSARY, THE OWNER, CONTRACTOR, OWNER'S REPRESENTATIVE, AND REPRESENTATIVES FROM AUTHORITIES HAVING JURISDICTION SHALL BE INVITED TO ATTEND THE MEETING.

- CONTRACTOR SHALL VERIFY THAT NECESSARY PERMITS HAVE BEEN OBTAINED PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY.
- REQUIRED PERMITTING FEES FROM THE APPROPRIATE AUTHORITIES ARE THE RESPONSIBILITY OF THE CONTRACTOR AND ARE TO BE INCLUDED WITH THE BID.

- CONTRACTOR SHALL SCHEDULE, OBTAIN, AND PAY FOR INSPECTIONS, CERTIFICATIONS, EQUIPMENT, ETC. THAT MAY BE REQUIRED.

- THE DESIGN PROFESSIONAL DISCLAIMS ANY ROLE IN THE CONSTRUCTION MEANS/METHODS ASSOCIATED WITH THE PROJECT AS SET FORTH IN THESE PLANS. CONSTRUCTION MEANS/METHODS ARE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

- CONTRACTOR IS RESPONSIBLE FOR COMPLIANCE WITH CURRENT APPLICABLE BUILDING CODES, ORDINANCES, AND LOCAL REGULATIONS.

- CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CURRENT APPLICABLE LOCAL, STATE, AND FEDERAL AGENCIES' REGULATIONS, STANDARDS, AND SPECIFICATIONS.

- CONSTRUCTION SHALL CONFORM TO OR EXCEED CURRENT REGULATIONS OF THE AMERICANS WITH DISABILITIES ACT AND OTHER CURRENT APPLICABLE STANDARDS AND GOVERNING AUTHORITIES.

- CONTRACTOR IS REQUIRED TO MEET CURRENT APPLICABLE FEDERAL, OSHA, STATE, AND LOCAL REGULATIONS CONCERNING PROTECT SAFETY AND ASSUMES RESPONSIBILITY FOR SAFETY ON THE PROJECT.

- WHERE COMPLIANCE WITH TWO OR MORE STANDARDS IS SPECIFIED, THE STANDARDS MAY ESTABLISH DIFFERENT OR CONFLICTING REQUIREMENTS FOR MINIMUM QUANTITIES OR QUALITY LEVELS. SHOULD THESE CONSTRUCTION DOCUMENTS CONTRADICT DIFFERENT OR CONFLICTING REQUIREMENTS, STANDARDS, DETAILS, OR INSTRUCTIONS, THE MOST STRINGENT REQUIREMENT SHALL BE ENFORCED UNLESS THE CONTRACT DOCUMENTS SPECIFICALLY INDICATE OTHERWISE. CONTRACTOR TO REFER REQUIREMENTS THAT ARE DIFFERENT AND UNCERTAINTIES AS TO WHICH QUALITY LEVEL IS MORE STRINGENT TO THE OWNER'S REPRESENTATIVE FOR A DECISION. CONTRACTOR SHALL PREPARE THE BID TO REFLECT THE MOST STRINGENT REQUIREMENT.

- CONTRACTOR SHALL NOT DO WORK BEYOND THE LIMIT OF DISTURBANCE AS DEFINED ON THE DRAWINGS AND AUTHORIZED BY THE RESPECTIVE AUTHORITY. IN SOME DRAWINGS, THE LIMIT OF DISTURBANCE IS GRAPHICALLY SHOWN TO CLEARLY DESCRIBE WORK TO BE PERFORMED. CONTRACTOR SHALL UTILIZE ONLY THAT SPACE WHICH IS REQUIRED TO PERFORM THE WORK AS PERMITTED/APPROVED. CONTRACTOR SHALL TAKE SOLE RESPONSIBILITY FOR UNAUTHORIZED WORK BEYOND THE LIMIT OF DISTURBANCE AND SHALL BE RESPONSIBLE FOR CORRECTING DISTURBED AREAS BEYOND THAT LIMIT AT NO ADDITIONAL COST TO THE OWNER. WORK SHALL BE TO THE SATISFACTION OF THE OWNER.

- CONTRACTOR SHALL PROTECT THE PUBLIC FROM CONSTRUCTION AREAS AND ASSOCIATED ACTIVITY DURING DEMOLITION, CONSTRUCTION, AND LAND DISTURBING ACTIVITY.

- CONTRACTOR TO PROVIDE REQUIRED CLEANING AND CONTROL MEASURES TO ENSURE STREETS AND SIDEWALKS ARE KEPT CLEAN FROM DIRT AND DEBRIS TO THE STANDARD ESTABLISHED BY PERMITTING AUTHORITIES.

- IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THE OWNER HAS IDENTIFIED EXISTING WETLANDS, STREAMS, AND OTHER WATER BODIES, ESTABLISHED JURISDICTION, AND PERMITTED CONSTRUCTION IMPACTS PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY.

- CONTRACTOR SHALL SELF PERFORM INVESTIGATIONS TO THE EXTENT NECESSARY TO DETERMINE EFFECTS OF SUB-SURFACE FINDINGS ON WORK AND SHALL BID AND CONSTRUCT WORK IN ACCORDANCE WITH FINDINGS.

- CONTRACTOR SHALL TIE FIELD SURVEY POINTS TO THE SAME CONTROL POINTS AS THE EXISTING CONDITIONS SURVEY.

- CONTRACTOR SHALL VISIT THE PROJECT SITE AND BRING UNUSUAL CONDITIONS AND DISCREPANCIES THAT MAY IMPACT CONSTRUCTION COSTS TO THE OWNER'S ATTENTION PRIOR TO SUBMITTING BID PRICING.

- EXISTING UTILITIES AND STRUCTURES SHOWN, BOTH UNDERGROUND AND ABOVE GROUND, ARE BASED ON FIELD SURVEYS AND THE BEST AVAILABLE RECORD DRAWINGS. CONTRACTOR SHALL VERIFY FIELD CONDITIONS AND LOCATIONS OF EXISTING UTILITIES PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY. UNUSUAL CONDITIONS AND DISCREPANCIES BETWEEN ACTUAL FIELD CONDITIONS AND THE PLANS SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

- CONTRACTOR SHALL NOTIFY "[NC811" (811) OR (1-800-632-4949)] AT LEAST [3] FULL BUSINESS DAYS PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "[NC811]". REPORT DISCREPANCIES TO THE OWNER'S REPRESENTATIVE IMMEDIATELY.

- SHOULD UNCHARTERED OR INCORRECTLY CHARTED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY, CONSULT THE OWNER'S REPRESENTATIVE IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THIS AREA.

- CONTRACTOR IS RESPONSIBLE FOR COORDINATING CONSTRUCTION ACTIVITIES WITH THE APPROPRIATE UTILITY PROVIDER FOR REQUIRED DISCONNECTION, REMOVAL, AND/OR RELOCATION OF EXISTING POWER LINES, POWER LINES, TELEPHONE FEEDSTAYS, WATER METERS, GAS LINES, ETC. AS SHOWN IN THE DEMOLITION PLAN.

- CONTRACTOR SHALL MAINTAIN UTILITIES SERVICES TO ADJOINING PROPERTIES DURING DEMOLITION, CONSTRUCTION, AND LAND DISTURBING ACTIVITY.

- CONTRACTOR SHALL CONTACT CHARLOTTE, NC DEPARTMENT OF TRANSPORTATION (NCDOT) PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITIES WITHIN THE PUBLIC RIGHT-OF-WAY.

- EXISTING CONDITIONS SLATED TO REMAIN THAT ARE DAMAGED BY THE CONTRACTOR AND/OR THEIR SUB CONTRACTORS, SHALL BE REPLACED/RESTORED BY THE CONTRACTOR TO THE ORIGINAL CONDITION OR TO THE SATISFACTION OF THE OWNER'S REPRESENTATIVE AT THE CONTRACTOR'S EXPENSE.

- EXISTING TREES TO BE SAVED SHALL HAVE TREE PROTECTION FENCES INSTALLED AROUND THEM AS SHOWN IN THE DETAILED DRAWINGS AND IN THE ALIGNMENT AS SHOWN IN THE CIVIL DRAWINGS PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY. WORK IN THOSE AREAS SHALL BE PROTECTED BY HAND. TREE PROTECTION FENCES SHALL BE MAINTAINED AND KEPT IN PLACE AT ALL TIMES UNTIL WORK IS COMPLETED.

- BACKFILL MATERIAL MUST BE APPROVED BY THE COUNTY INSPECTOR PRIOR TO PLACEMENT OF THE MATERIAL WITHIN THE PUBLIC STREET RIGHT-OF-WAY.

- CONTRACTOR SHALL NOTE THAT THE DRAWINGS MAY NOT SHOW EVERY OFFSET, TRANSITION, FITTING, ETC. THAT MAY BE REQUIRED. CONTRACTOR SHALL INSTALL SUCH STANDARD APPURTENANCES AS REQUIRED TO CLOSELY FOLLOW THE GRADES AND ALIGNMENTS DETICED ON THE PLANS.

- DIMENSIONS AND GRADES SHOWN ON THE PLANS SHALL BE FIELD VERIFIED BY THE CONTRACTOR PRIOR TO STARTING DEMOLITION, CONSTRUCTION, OR LAND DISTURBING ACTIVITY. CONTRACTOR SHALL NOTIFY THE OWNER'S REPRESENTATIVE IF DISCREPANCIES EXIST PRIOR TO PROCEEDING WITH AFFECTED WORK. CONTRACTOR RECOMMENDS FIELD ADJUSTMENTS SHALL RECEIVE APPROVAL FROM OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING WITH CONSTRUCTION, INCORPORATING THE REQUESTED FIELD ADJUSTMENT. NO EXTRA COMPENSATION SHALL BE PAID TO CONTRACTOR FOR WORK DONE DUE TO DIMENSIONS OR GRADES SHOWN INCORRECTLY ON THESE PLANS IF SUCH NOTIFICATION AND APPROVAL HAS NOT BEEN GIVEN.

- CONTRACTOR SHALL BE RESPONSIBLE FOR ENSURING PROPER DRAINAGE OF AREAS WHICH ARE FIELD ADJUSTED DURING CONSTRUCTION.

- EQUIPMENT AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED PROVIDED THAT WRITTEN APPROVAL HAS BEEN OBTAINED FROM THE OWNER'S REPRESENTATIVE PRIOR TO ORDERING OR INSTALLATION. DIFFERENCE IN COST TO THE OWNER TO BE APPROVED THROUGH AN ESTABLISHED CHANGE ORDER PROCEDURE PRIOR TO ORDERING OR INSTALLATION.

- CONTRACTOR SHALL REFER TO AND COORDINATE WITH ARCHITECTURAL, STRUCTURAL, AND MEP DRAWINGS AT ALL TIMES PRIOR TO AND DURING CONSTRUCTION.

- CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION OF CONDUITS AND SLEEVING FOR PROPOSED UTILITIES TO BE INSTALLED.

- CONTRACTOR TO ENSURE PROPER STABILIZATION AND SEEDING OF THE SITE IN ACCORDANCE WITH CURRENT APPLICABLE REGULATIONS.

- CONTRACTOR SHALL MAINTAIN AN "AS-BUILT" SET OF DRAWINGS TO RECORD THE EXACT

LOCATION OF FIELD ADJUSTMENTS MADE DURING CONSTRUCTION AND UTILITIES PRIOR TO CONSTRUCTION. DRAWINGS SHALL BE GIVEN TO THE OWNER UPON COMPLETION OF THE PROJECT WITH A COPY OF THE TRANSMITTAL LETTER TO THE DESIGN PROFESSIONAL.

- PLANTS, MATERIAL, AND WORKMANSHIP ARE SUBJECT TO THE APPROVAL OF THE OWNER'S REPRESENTATIVE, IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.

- CONTRACTOR SHALL PREPARE AND SUBMIT THE FOLLOWING OPERATION AND MAINTENANCE DOCUMENTATION:

- OPERATION AND MAINTENANCE DOCUMENTATION DIRECTORY - FOR USE AS AN ORGANIZED SUB-RENDERER TO EMERGENCY, OPERATION, AND MAINTENANCE MANUALS.
- EMERGENCY MANUAL - A COMPLETE SET OF EMERGENCY INFORMATION INDICATING PROCEDURES FOR USE BY EMERGENCY PERSONNEL AND BY OWNER'S OPERATING PERSONNEL.
- PRODUCT MAINTENANCE MANUAL - A COMPLETE SET OF MAINTENANCE DATA INDICATING CARE AND MAINTENANCE OF EACH PRODUCT, MATERIAL, AND FINISH INCORPORATED INTO THE WORK.
- OPERATION AND MAINTENANCE MANUAL - A COMPLETE SET OF OPERATION AND MAINTENANCE DATA INDICATING OPERATION AND MAINTENANCE OF EACH SYSTEM, SUBSYSTEM, AND PIECE OF EQUIPMENT NOT PART OF A SYSTEM.
- MANUFACTURERS' DATA - WHERE MANUALS CONTAIN MANUFACTURERS' STANDARD PRINTED DATA, INCLUDE ONLY SHEETS PERTINENT TO PRODUCT OR COMPONENT INSTALLED. MARK EACH SHEET TO IDENTIFY EACH PRODUCT OR COMPONENT INCORPORATED INTO THE WORK. PREPARE SUPPLEMENTARY TEXT IF MANUFACTURERS' STANDARD PRINTED DATA IS NOT AVAILABLE AND WHERE THE INFORMATION IS NECESSARY FOR PROPER OPERATION AND MAINTENANCE OF EQUIPMENT OR SYSTEMS.
- MAINTENANCE SERVICE AGREEMENTS - AS APPLICABLE.
- PRODUCT SPECIFIC WARRANTY INFORMATION.

- SUBMIT EACH MANUAL IN ITS FINAL FORM FOR OWNER REVIEW AND APPROVAL AT LEAST 30 DAYS PRIOR TO SCHEDULED OPERATION AND MAINTENANCE DEMONSTRATION AND TRAINING EXERCISES. REVISE AS NECESSARY AND RETURN CORRECTED MANUALS PRIOR TO COMMENCING DEMONSTRATION AND TRAINING.

- CONTRACTOR SHALL LEAD OWNER'S PERSONNEL THROUGH DEMONSTRATIONS OF SYSTEMS, SUBSYSTEMS, AND EQUIPMENT TO INSTRUCT AND TRAIN PERSONNEL ON OPERATION AND MAINTENANCE NEEDS AND TO REVIEW WARRANTY INFORMATION.

- CONTRACTOR SHALL GUARANTEE, FOR A PERIOD OF ONE YEAR FROM THE DATE OF FINAL ACCEPTANCE OF SYSTEMS BY OWNER, EACH AND EVERY PIECE OF APPARATUS WHICH HAS BEEN INSTALLED UNDER THIS CONTRACT.

- REQUIRED MAINTENANCE AND INSPECTIONS AFTER WARRANTY PERIOD SHALL BE THE RESPONSIBILITY OF THE OWNER.

- CONTRACTOR SHALL DELIVER TOOLS, SPARE PARTS, EXTRA MATERIALS, AND SIMILAR ITEMS TO LOCATION DESIGNATED BY OWNER. LABEL WITH THE MANUFACTURER'S NAME AND MODEL NUMBER WHERE APPLICABLE.

- CONTRACTOR SHALL ACCEPT, HANDLE, AND STORE PRODUCTS USING MEANS AND METHODS THAT PREVENT DAMAGE, DETERIORATION, AND LOSS, INCLUDING THEFT AND VANDALISM. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

- SEE CUI DRAWINGS FOR GRADING AND DRAINAGE INFORMATION.

- SEE ELECTRICAL DRAWINGS FOR ELECTRICAL CONDUIT SIZES AND LOCATIONS.

- SEE FIELD IRRIGATION DRAWINGS FOR IRRIGATION CONDUIT SIZES AND LOCATIONS.

- SEE ARCHITECTURAL DRAWINGS FOR BUILDING INFORMATION.

- BUILDING ELEVATIONS WILL BE PROVIDED AT PERMIT STAGE.

- TRAFFIC IMPACT ASSESSMENT IS NOT REQUIRED.

- THIS PROPERTY MAY BE SUBJECT TO ANY EASEMENTS AND/OR RIGHT-OF-WAY RECORD.

- POTABLE WATER TO BE PROVIDED VIA TAP ON EXISTING CHARLOTTE SERVICE ALONG NORTH MECKLENBURG PARK. SEWER TO BE PROVIDED VIA CONNECTION TO EXISTING CHARLOTTE WATER SEWER SERVICE. SEE SHEET 1 FOR PRELIMINARY UTILITIES.

DEMOLITION NOTES

- THE CONTRACTOR SHALL FIELD VERIFY AND LOCATE ALL EXISTING UTILITIES ON SITE PRIOR TO DEMOLITION.

- THE CONTRACTOR SHALL PERFORM DEMOLITION ACTIVITIES AS NOTED AND SHOWN ON THESE PLANS AND AS DIRECTED BY THE OWNER.

- IT WILL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN ANY PERMITS AND PAY FEES REQUIRED FOR DEMOLITION AND HALI-OFF FROM THE APPROPRIATE AUTHORITIES. THESE FEES ARE TO BE INCLUDED WITH THE BID.

- THE CONTRACTOR SHALL PREPARE ALL DOCUMENTS AND ACQUIRE APPROPRIATE PERMITS AS REQUIRED PRIOR TO THE COMMENCEMENT OF DEMOLITION.

- THE DEMOLITION PLAN IS INTENDED TO DEPICT GENERAL DEMOLITION AND UTILITY WORK. IT IS NOT INTENDED TO IDENTIFY EACH ELEMENT OF DEMOLITION/RELOCATION. CONTRACTOR SHALL COORDINATE WITH THE OWNER AND APPROPRIATE UTILITY COMPANY PRIOR TO WORK.

- CONTRACTOR TO COMPLETELY DEMOLISH AND DISPOSE OF OFFSITE IN A LAWFUL MANNER EXISTING BUILDINGS, INCLUDING FOUNDATIONS AND ALL APPURTENANCES LOCATED ON AND AROUND THE PROPERTY INCLUDING BUT NOT LIMITED TO CURBS, SIDEWALKS, TREES AND SHRUBS.

- REMOVE AND DISPOSE OF ANY SIDEWALK, FENCES, STAIRS, WALLS, FOUNDATIONS, CONDUITS, LIGHT POLE BASES, DEBRIS AND RUBBISH REQUIRING REMOVAL FROM THE WORK AREA IN AN APPROVED LANDFILL.

- REMOVE AND/OR PLUG EXISTING UTILITIES SUCH AS SANITARY SEWER, WATER, GAS, ELECTRIC, AND TELEPHONE AS SHOWN. THE CONTRACTOR IS RESPONSIBLE FOR CONTACTING EACH UTILITY COMPANY TO COORDINATE REMOVAL OF ALL UTILITIES AND FOR DETERMINING HORIZONTAL AND VERTICAL LOCATIONS OF UTILITIES PRIOR TO COMMENCING WORK.

- THE CONTRACTOR SHALL CUT AND PLUG, OR ARRANGE FOR THE APPROPRIATE UTILITY COMPANY TO CUT AND PLUG ALL SERVICE PIPING AT THE STREET LINE OR MAIN, AS REQUIRED, OR AS OTHERWISE NOTED. ALL SERVICES MAY NOT BE SHOWN ON THE PLAN. THE CONTRACTOR SHALL INVESTIGATE THE SITE PRIOR TO PLANNING TO DETERMINE THE EXTEND OF SERVICE PIPING TO BE REMOVED, CUT, OR PLUGGED.

- CONTRACTOR SHALL COORDINATE WITH UTILITY DEPARTMENT IN THE REMOVAL/RELOCATION OF EXISTING POWER POLES AND OVERHEAD POWER LINES.

- THE CONTRACTOR SHALL ARRANGE FOR RESETTling OF CURB BOWS, VALVE BOXES AND REMOVAL AND/OR RELOCATION OF OVERHEAD UTILITIES AND POLES WITH THE APPROPRIATE UTILITY COMPANY.

- THE CONTRACTOR IS RESPONSIBLE FOR THE PROTECTION OF ALL UTILITIES TO REMAIN IN PLACE.

- THE CONTRACTOR IS RESPONSIBLE TO REPLACE ANY TREES THAT ARE DAMAGED DURING CONSTRUCTION THAT ARE TO BE PROTECTED AS SHOWN ON THE PLANS.

- THE CONTRACTOR SHALL TAKE ALL PRECAUTIONS TO AVOID UNNECESSARY DAMAGE TO EXISTING ROAD SURFACE.

- FINISH SURFACE TO BE REMOVED OR DEMOLISHED SHALL BE CUT ALONG LINES OF JOINTS WHICH WILL PERMIT A NEAT SURFACE WHEN RESTORED.

- SAWCUT AT INTERFACE OF PAVEMENT OR CURB TO REMAIN. SAWCUT EXISTING PAVEMENT AT THE R/W.

- ALL EXISTING ITEMS TO REMAIN WHICH ARE DAMAGED DURING CONSTRUCTION SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT THE SOLE EXPENSE OF THE CONTRACTOR.

- THE CONTRACTOR SHALL MAINTAIN ALL UTILITY SERVICES TO THE ADJOINING PROPERTIES DURING THE DEMOLITION PROCESS.

- DO NOT INTERRUPT EXISTING UTILITIES SERVING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER AND THE LOCAL MUNICIPALITIES. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY SERVICE HAS BEEN PROVIDED.

- SHOULD ANY UNCHARTERED OR INCORRECTLY CHARTED EXISTING PIPING OR OTHER UTILITY BE UNCOVERED DURING EXCAVATION, CONSULT THE ENGINEER IMMEDIATELY FOR DIRECTIONS BEFORE PROCEEDING FURTHER WITH WORK IN THE IS AREA.

- ASSESSORS OR HAZARDOUS MATERIAL, IF FOUND ON SITE, SHALL BE REMOVED BY A LICENSED HAZARDOUS MATERIAL CONTRACTOR.

- IN ACCORDANCE WITH 40 CFR, PART 61, SUBPART N, A THOROUGH INSPECTION SHALL BE CONDUCTED FOR ASBESTOS-CONTAINING MATERIALS PRIOR TO CONDUCTING A RENOVATION OR DEMOLITION ACTIVITY OF AN EXISTING STRUCTURE. THE ASBESTOS INSPECTION MUST BE CONDUCTED BY A NORTH CAROLINA ACCREDITED ASBESTOS INSPECTOR. ALL REGULATED AND/OR FRAGILE ASBESTOS-CONTAINING MATERIALS IDENTIFIED DURING THE SURVEY, WHICH WILL BE DISTURBED, MUST BE PROPERLY REMOVED BY ACCREDITED INDIVIDUALS BEFORE BEGINNING THE RENOVATION OR DEMOLITION ACTIVITY. IF REGULATED AND/OR FRAGILE ASBESTOS CONTAINING MATERIALS TO BE REMOVED EXCEED 160 SQUARE FEET, 260 LINEAR FEET OR 35 CUBIC FEET, A PERMIT SHALL BE OBTAINED FOR THROUGH THE NORTH CAROLINA DEPARTMENT OF HEALTH AND HUMAN SERVICES.

- ALL MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A PERMITTED SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

- UTILITY APPURTENANCES TO BE REMOVED INCLUDING, BUT ARE NOT LIMITED TO HYDRANTS, FIRE DEPARTMENT CONNECTIONS, VALVES/VALVE BOXES, STORM DRAIN AND/OR SANITARY SEWER CLEANOUTS, STORM DRAIN INLETS.

GENERAL TOWN DRAINAGE NOTES

- ALL WORK AND MATERIALS SHALL CONFORM TO THE LATEST EDITION OF THE TOWN OF HUNTERSVILLE UDO UNLESS OTHERWISE SPECIFIED.

- ALL TOWN DRAINAGE PIPES SHOWN SHALL BE REINFORCED CONCRETE (RCF) (MINIMUM CLASS III) UNLESS NOTED OTHERWISE. CONTRACTOR TO COORDINATE WITH THE GEOTECH TO VERIFY TYPE OF BEDDING REQUIRED BASED ON SOIL CONDITIONS. CONTRACTOR TO SELECT REQUIRED BEDDING FOR ON-SITE PRE-CONSTRUCTION CONFERENCE WITH THE EROSION CONTROL INSPECTOR OF THE TOWN ENGINEERING DEPARTMENT TO DISCUSS EROSION CONTROL MEASURES. FAILURE TO SCHEDULE SUCH CONFERENCE 48 HOURS PRIOR TO ANY LAND DISTURBING ACTIVITY IS A VIOLATION OF CHAPTER 17 OF THE CITY CODE AND IS SUBJECT TO FINE.

- ALL TOWN DRAINAGE CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE LATEST TOWN OF HUNTERSVILLE STANDARDS.

- ALL PRIVATE STORM DRAINAGE PIPE SHALL BE REINFORCED CONCRETE PIPE, CORTECH CORRUGATED METAL PIPE, CORRUGATED METAL PIPE, OR HIGH DENSITY POLYETHYLENE (HDPE) PIPE, AS APPROVED BY THE CEC. NO OTHER TYPE OF PIPE SHALL BE USED WITHOUT PRIOR APPROVAL FROM THE CEC. ALL PIPES SHALL BE LAID WITH THE BELL OR GROOVE UPGRADE AND THE JOINT ENTIRELY INTERLOCKING.

- ALL CONCRETE SHALL MEET A MINIMUM 3000 PSI COMPRESSIVE STRENGTH IN ORDER TO USE PRE-CAST STORM DRAINAGE STRUCTURES IN ANY STREET RIGHTS-OF-WAY. PRIOR APPROVAL SHALL BE OBTAINED FROM THE TOWN ENGINEER.

- ALL HIGH-DENSITY POLYETHYLENE PIPE SHALL BE CORRUGATED EXTERIOR/SMOOTH INTERIOR, CONFORM TO THE REQUIREMENTS OF ASHOTO SPECIFICATION M38 FOR CORRUGATED POLYETHYLENE PIPE AND SHALL REQUIRE COUPLING BANDS AND FITTINGS.

- CONCRETE PIPE USED WITHIN THE STREET RIGHT-OF-WAY SHALL BE A MINIMUM OF CLASS-III REINFORCED CONCRETE PIPE, WITH A MINIMUM DIAMETER OF FIFTEEN (15) INCHES (EIGHTEEN (18) INCHES MINIMUM ON CROSS DRAIN STRUCTURES WITHIN THE COUNTY).

- THE MINIMUM COVER FOR ALL PIPE IS TWO (2) FEET. SPECIAL APPLICATIONS FOR LESS THAN TWO (2) FEET OF COVER WILL BE REVIEWED INDIVIDUALLY.

- THE PIPE SHALL BE CLEAN AND MOIST WHEN MORTAR IS APPLIED. THE LOWER PORTIONS OF THE BELL OR GROOVE SHALL BE FILLED WITH MORTAR SUFFICIENT TO BRING THE INNER SURFACE FLUSH AND EVEN WHEN THE NEXT JOINT IS FITTED INTO PLACE. THE REMAINDER OF THE JOINT SHALL THEN BE FILLED WITH MORTAR AND A LEAD OR RING OF MORTAR FORMED AROUND THE OUTSIDE OF THE JOINT. THE APPLICATION OF INTERIOR MORTAR MAY BE DELAYED UNTIL BACKFILL IS COMPLETED WHEN THE PIPE IS LARGER THAN THIRTY (30) INCHES.

- ALL PIPE JOINTS SHALL BE MADE WITH PREFORMED JOINT SEALER, WHICH CONFORMS TO ASHOTO SPECIFICATION M-38 FOR TYPE B FLEXIBLE PLASTIC GASKETS UNLESS OTHERWISE NOTED. PREFORMED JOINT SEALER, WHICH CONFORMS TO ASHOTO SPECIFICATION M-188 FOR TYPE B FLEXIBLE PLASTIC GASKETS, MAY BE USED IN LIEU OF THE MORTAR JOINTING METHOD.

- COUPLING BANDS AND FITTINGS SHALL BE USED FOR JOINING ALL HDPE PIPE. COUPLING BANDS SHALL COVER AT LEAST ONE FULL CORRUGATION ON EACH SECTION OF PIPE. GASKET COUPLING BANDS ARE REQUIRED BETWEEN ALL PIPE JOINTS. THE GASKET SHALL BE MADE OF CLOSED-CELL SYNTHETIC EXPANDED RUBBER MEETING THE REQUIREMENTS OF ASTM D1056, TYPE 2. THE PIPE MANUFACTURER SHALL INSTALL GASKETS ON THE COUPLING BAND. ALL COUPLING BANDS SHALL MEET OR EXCEED THE TIGHTNESS REQUIREMENT OF ASHOTO STANDARD SPECIFICATION FOR HIGHWAY BRIDGES, SECTION 23, PARAGRAPH 23.1.5.4(E). PIPEFITTINGS SHALL CONFORM TO ASHOTO M252 OR ASHOTO M294.

- THE INTERIOR SURFACES OF ALL TOWN DRAINAGE STRUCTURES SHALL BE POINTED UP AND SMOOTHED TO AN ACCEPTABLE STANDARD USING MORTAR MIXED TO MANUFACTURER'S SPECIFICATIONS.

- ALL PIPES IN STORM DRAIN STRUCTURES SHALL BE FLUSH WITH THE INSIDE WALL.

- ANY STORM DRAIN STRUCTURES OVER THREE (3) FEET AND SIX (6) INCHES IN HEIGHT MUST HAVE STEPS IN ACCORDANCE WITH STANDARD DETAILS.

- ALL FRAMES, GRATES, RINGS, COVERS, ETC., MUST CONFORM TO THE STANDARDS.

- ALL GRADED CURB BANKS AND SLOPES SHALL BE AT A MAXIMUM OF TWO (2) FEET HORIZONTAL, TO ONE (1) FOOT VERTICAL (2:1) AND NOT TO EXCEED 10' WITHOUT TERRACING.

- ALL BACKFILL SHALL BE NON-PLASTIC IN NATURE, FREE FROM ROOTS, VEGETATIVE MATTER, WASTE, CONSTRUCTION MATERIAL, OR OTHER OBJECTIONABLE MATERIAL. SALT MATERIAL SHALL BE CAPABLE OF BEING COMPACTED BY MECHANICAL MEANS AND SHALL HAVE NO TENDENCY TO FLOW OR BEHAVE IN A PLASTIC MANNER UNDER THE TAMPING BLOWS OR PROOF ROLLING.

- MATERIALS DEEMED BY THE GEOTECH OR ENGINEER AS UNSUITABLE FOR BACKFILL PURPOSES SHALL BE REMOVED AND REPLACED WITH SELECT BACKFILL MATERIAL.

- BACKFILLING OF TRENCHES SHALL BE ACCOMPLISHED IMMEDIATELY AFTER THE PIPE IS LAID. THE FILL AROUND THE PIPE SHALL BE PLACED IN LAYERS NOT TO EXCEED EIGHT (8) INCHES, EACH LAYER SHALL BE THOROUGHLY COMPACTED TO 95% OF THE MAXIMUM DENSITY OBTAINABLE WITH THE STANDARD PROCTOR TEST AT DENSITY OF 100% STANDARD PROCTOR IS REQUIRED FOR THE TOP EIGHT (8) INCHES.

- COMPACTION REQUIREMENTS SHALL BE ATTAINED BY THE USE OF MECHANICAL COMPACTION METHODS. EACH LAYER OF BACKFILL SHALL BE PLACED LOOSE AND THOROUGHLY COMPACTED IN PLACE.

- UNDER NO CIRCUMSTANCES SHALL WATER BE PERMITTED TO RISE IN UNBACKFILLED TRENCHES AFTER THE PIPE HAS BEEN PLACED.

- SEALED STRUCTURAL DESIGN FOR ALL STRUCTURES GREATER THAN NCDOT MAXIMUM ALLOWED DEPTH OR GREATER THAN 12' REQUIRED PRIOR TO CONSTRUCTION

- SHOP DRAWINGS TO BE REVIEWED AND APPROVED BY THE ENGINEER OF RECORD. DESIGN OF CURBVERTS AND HEADWALLS TO BE REVIEWED WITH CONSTRUCTION PLAN SUBMITTAL BY THE TOWN OF HUNTERSVILLE

- FRAMES, GRATES AND HOODS SHALL BE OF CAST IRON AND SHALL BE OF A DESIGN AND WEIGHT WHICH IS RECOMMENDED BY THE MANUFACTURER AS BEING ADEQUATE FOR HS-20 LOADINGS. THE NUMBER 840.03 AND THE NAME OF THE MANUFACTURER MUST BE PERMANENTLY CAST ON THE FRAME AND ON THE GRATE.

EROSION CONTROL NOTES:

- ANY GRADING BEYOND THE DENOTED LIMITS SHOWN ON THE PLAN IS A VIOLATION OF THE CITY/COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO A FINE.

- GRADING MORE THAN ONE ACRE WITHOUT AN APPROVED EROSION CONTROL PLAN IS A VIOLATION OF THE TOWN/COUNTY EROSION CONTROL ORDINANCE AND IS SUBJECT TO FINE.

- ALL PERMITTER DIKES, SWALES, DITCHES, PERIMETER SLOPES AND ALL SLOPES STEEPER THAN 3:1 HORIZONTAL TO 1 VERTICAL (3:1) SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 7 DAYS CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY. ALL OTHER DISTURBED AREAS SHALL BE PROVIDED TEMPORARY OR PERMANENT STABILIZATION WITH GROUND COVER AS SOON AS PRACTICABLE BUT IN ANY EVENT WITHIN 14 CALENDAR DAYS FROM THE LAST LAND DISTURBING ACTIVITY.

- ADDITIONAL MEASURES TO CONTROL EROSION AND SEDIMENT MAY BE REQUIRED BY A REPRESENTATIVE OF THE TOWN ENGINEERING DEPARTMENT.
- SLOPES SHALL BE GRADED NO STEEPER THAN 2:1. FILL SLOPES GREATER THAN 10' REQUIRE ADEQUATE SLOPE MATTING AND OTHER POSSIBLE MEASURES. SOILS ENGINEER TO VERIFY STABILITY OF SLOPES GREATER THAN 2:1.

- A GRADING PLAN MUST BE SUBMITTED FOR ANY LOT GRADING EXCEEDING ONE ACRE THAT WAS NOT PREVIOUSLY APPROVED.

- AREA UNDER EMBANKMENT SHALL BE CLEARED, GRUBBED, AND STRIPPED OF ANY VEGETATION AND ROOT MATERIAL. THE BASIN AREA SHALL BE CLEARED.

- THE FILL MATERIAL FOR THE EMBANKMENT SHALL BE FREE OF ROOTS OR OTHER WOODY VEGETATION AS WELL AS OVERSIZED STONES, ROCKS, ORGANIC MATERIAL OR OTHER OBJECTIONABLE MATERIAL. THE EMBANKMENT SHALL BE COMPACTED BY TRAVERSING WITH EQUIPMENT WHILE BEING CONSTRUCTED. SLOPES SHOULD NOT BE CONSTRUCTED THROUGH FILL SECTIONS. ALL SPILLSHALLS SHOULD BE LINED AND/OR RIP-RAPPED.

- CONSTRUCTION OPERATION SHALL BE CARRIED OUT IN SUCH A MANNER THAT EROSION AND WATER POLLUTION IS MINIMIZED.

- ALL CUT AND FILL SLOPES SHALL BE 2:1 OR FLATTER, UNLESS CERTIFIED BY REGISTERED GEOTECHNICAL ENGINEER.

- FOR SLOPES GREATER THAN 10' IN LENGTH AND PROTECTED BY SILT FENCE AT THE TOE OF THE SLOPE, SLOPE MATTING AND OTHER POSSIBLE MEASURES WILL BE REQUIRED.

- THE BERM ON SEDIMENT BASINS SHALL BE SEEDS ONE FINAL GRADE HAS BEEN REACHED. THE SILT FENCE MAY BE REMOVED IF PERMISSION HAS BEEN GRANTED BY THE CITY LAND DEVELOPMENT INSPECTOR AFTER THE GRASS HAS GERMINATED AND STABLE GROUND HAS BEEN ESTABLISHED.

- WASHED STONE AND WIRE BACKING SHALL BE USED WITH SILT FENCE WHENEVER SILT FENCE IS PLACED AT THE TOE OF A SLOPE -10' VERTICAL OR ALONG ANY CHANNEL OR WATER COURSE WHERE 50' OF BUFFER IS NOT PROVIDED.

- ALL TREES & BRUSH REMOVED DURING CLEARING & GRUBBING OF SITE SHALL BE CHIPPED ON SITE AND HAULLED OFF SITE FOR DISPOSAL.

- ALL DISTURBED AREAS TO BE SEEDS.

- NO DEMOLITION TO OCCUR PRIOR TO PRE-CONSTRUCTION MEETING.

CONSTRUCTION SEQUENCE - STAGE I

- ALL MATERIAL TO BE DEMOLISHED SHALL BE REMOVED FROM THE SITE AND DISPOSED OF AT A PERMITTED SITE IN ACCORDANCE WITH ALL LOCAL, STATE AND FEDERAL LAWS.

- UTILITY APPURTENANCES TO BE REMOVED INCLUDING, BUT ARE NOT LIMITED TO HYDRANTS, FIRE DEPARTMENT CONNECTIONS, VALVES/VALVE BOXES, STORM DRAIN AND/OR SANITARY SEWER CLEANOUTS, STORM DRAIN INLETS.

DISCHARGE MAY RESULT IN RESTORATION REQUIREMENTS.

ENFORCEMENT NOTE 2: IF EXCESSIVE SEDIMENT IS LEAVING THE SITE, A REVISED SEDIMENT AND EROSION CONTROL PLAN MAY BE REQUIRED, WITH ASSOCIATED REQUIREMENTS FOR ADDITIONAL SEE MEASURES.

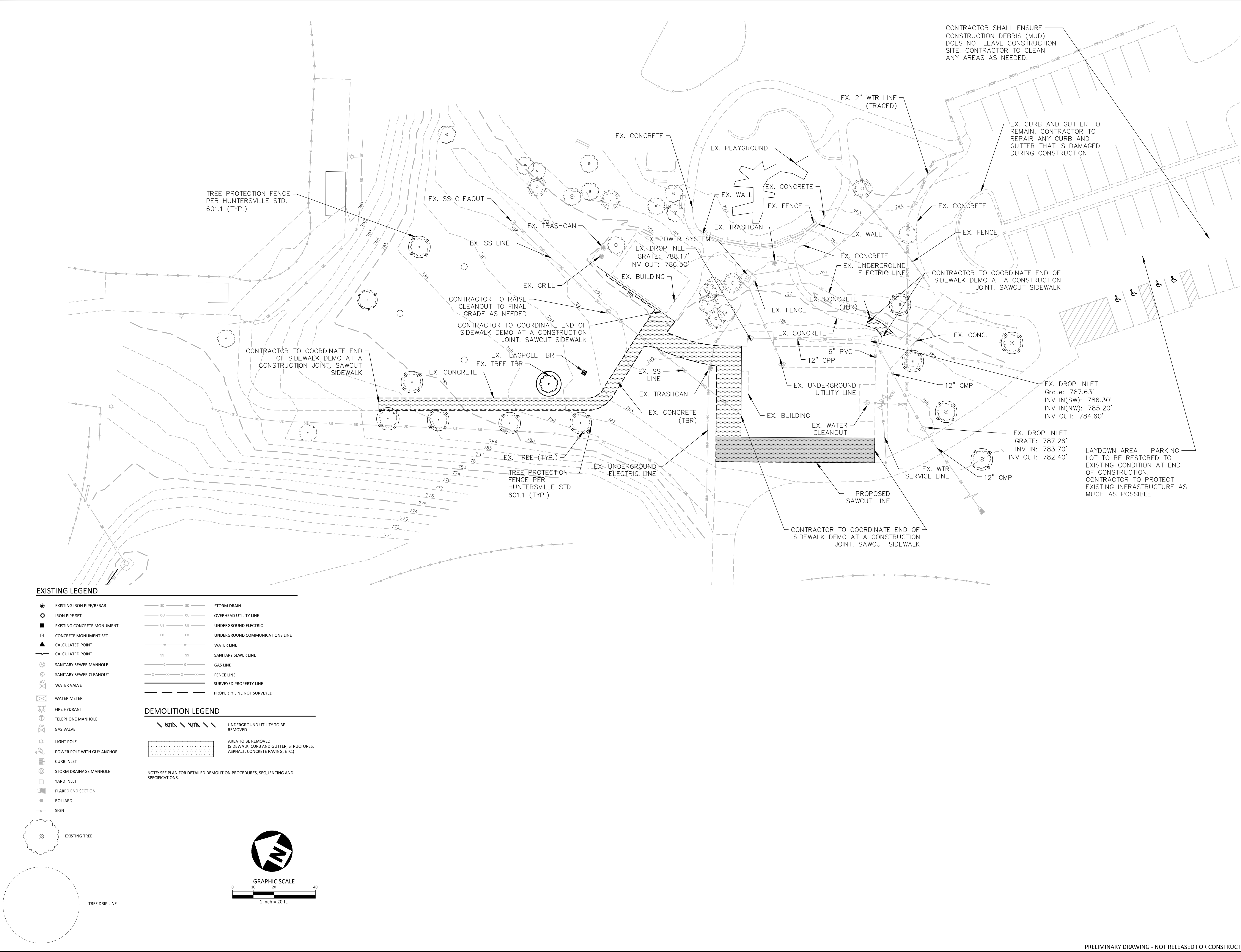
- OBTAIN GRADING/EROSION CONTROL PLAN APPROVAL FROM THE TOWN OF HUNTERSVILLE ENGINEERING DEPARTMENT, DRIVEWAY PERMIT FROM NCDOT, AND OTHER APPLICABLE PERMITS AND KEEP HARD-COPIES POSTED ON-SITE.

- SET UP AN ON-SITE PRE-CONSTRUCTION CONFERENCE WITH THE EROSION CONTROL INSPECTOR OF THE TOWN ENGINEERING DEPARTMENT TO DISCUSS EROSION CONTROL MEASURES. FAILURE TO SCHEDULE SUCH CONFERENCE 48 HOURS PRIOR TO ANY LAND DISTURBING ACTIVITY IS A VIOLATION OF CHAPTER 17 OF THE CITY CODE AND IS SUBJECT TO FINE.

- INSTALL TREE PROTECTION FENCING AROUND THE DENOTED TREES AS SHOWN CLEARING ONLY AS NECESSARY TO INSTALL THESE DEVICES.
- INSTALL PERIMETER MEASURES INCLUDING, BUT NOT LIMITED TO, SILT FENCE (STANDARD AND HIGH HAZARD) AND SILT FENCE OUTLETS CLEARING ONLY AS NECESSARY TO INSTALL THESE DEVICES. CONTRACTOR TO INSTALL ADDITIONAL SILET FENCE OUTLETS AS REQUIRED AROUND THE SITE PERIMETER TO RELIEVE PRESSURE FROM THE SILT FENCE AS DIRECTED BY THE INSPECTOR OR AS A RESULT OF CONSTRUCTION CONDITIONS.

- THE CONTRACTOR SHALL DILIGENTLY AND CONTINUOUSLY MAINTAIN ALL EROSION CONTROL DEVICES AND STRUCTURES

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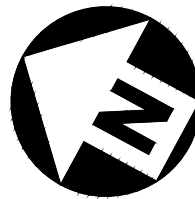
EXISTING LEGEND

- | | | | | |
|-----|----------------------------|-----------|-----|---------------------------------|
| ● | EXISTING IRON PIPE/REBAR | SD | SD | STORM DRAIN |
| ○ | IRON PIPE SET | OU | OU | OVERHEAD UTILITY LINE |
| ■ | EXISTING CONCRETE MONUMENT | UE | UE | UNDERGROUND ELECTRIC |
| □ | CONCRETE MONUMENT SET | FD | FD | UNDERGROUND COMMUNICATIONS LINE |
| ▲ | CALCULATED POINT | W | W | WATER LINE |
| —▲— | CALCULATED POINT | SS | SS | SANITARY SEWER LINE |
| ⊙ | SANITARY SEWER MANHOLE | G | G | GAS LINE |
| ⊙ | SANITARY SEWER CLEANOUT | X—X—X—X—X | | FENCE LINE |
| ⊙ | WATER VALVE | --- | --- | SURVEYED PROPERTY LINE |
| ⊙ | WATER METER | --- | --- | PROPERTY LINE NOT SURVEYED |
| ⊙ | FIRE HYDRANT | | | |
| ⊙ | TELEPHONE MANHOLE | | | |
| ⊙ | GAS VALVE | | | |
| ⊙ | LIGHT POLE | | | |
| ⊙ | POWER POLE WITH GUY ANCHOR | | | |
| ⊙ | CURB INLET | | | |
| ⊙ | STORM DRAINAGE MANHOLE | | | |
| ⊙ | YARD INLET | | | |
| ⊙ | FLARED END SECTION | | | |
| ⊙ | BOLLARD | | | |
| ⊙ | SIGN | | | |

DEMOLITION LEGEND

- | | |
|-----|--|
| --- | UNDERGROUND UTILITY TO BE REMOVED |
| --- | AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.) |

NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.



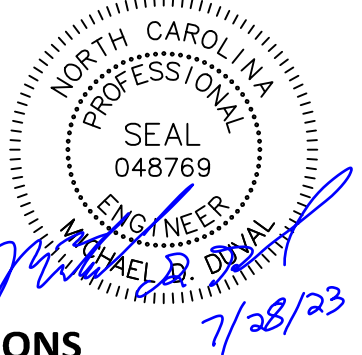
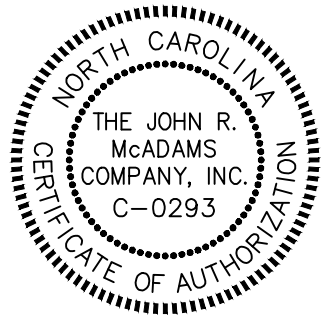
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CLIENT

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PHONE: 704.875.6541



**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO.	HUN-22003
FILENAME	HUN22003-DM1-North Mecklenburg Park.dwg
CHECKED BY	MDD
DRAWN BY	JRD
SCALE	1"=10'
DATE	07/28/2023

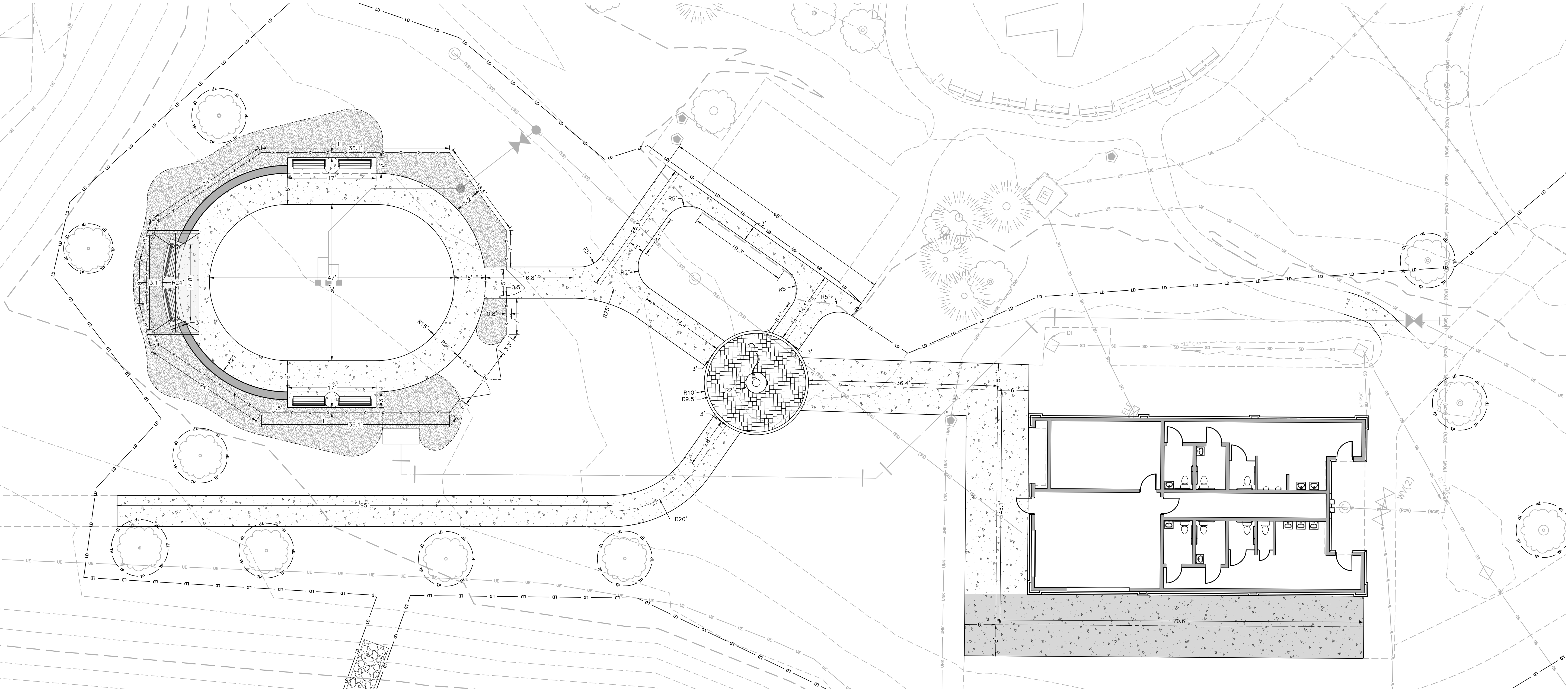
SHEET

DEMOLITION PLAN

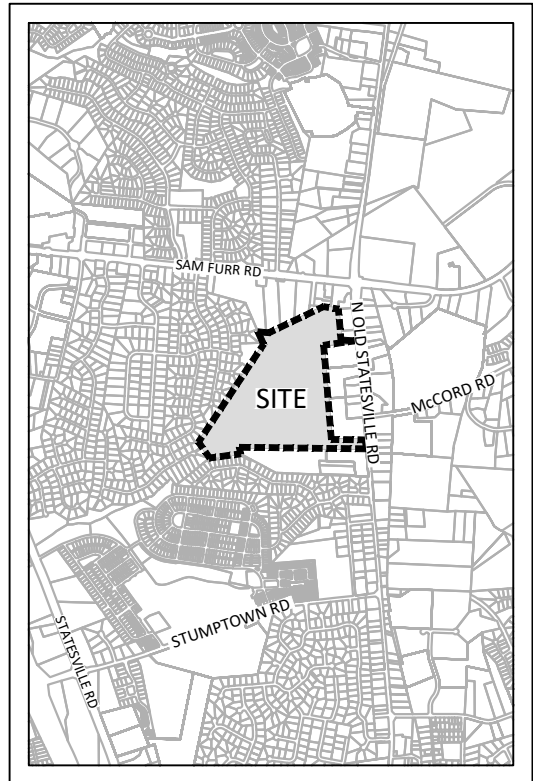
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PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

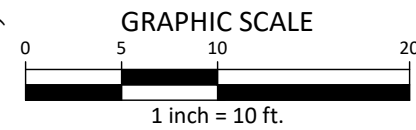
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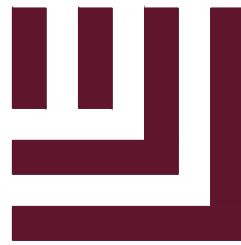
SITE LEGEND	
	SIGNAGE
	CENTERLINE
	TREE PROTECTION FENCE
	LIMITS OF DISTURBANCE
	4' HEIGHT FENCE
	CONCRETE SIDEWALK
	HEAVY DUTY CONCRETE PAVING
	DECORATIVE PAVERS



VICINITY MAP
N.T.S.



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



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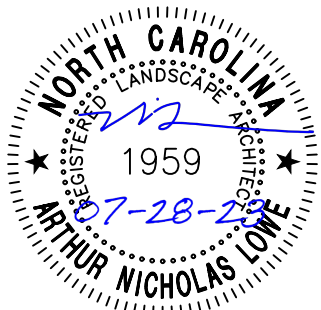
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NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
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CHECKED BY ANL
DRAWN BY KML
SCALE 1"=10'
DATE 07/28/2023

SHEET

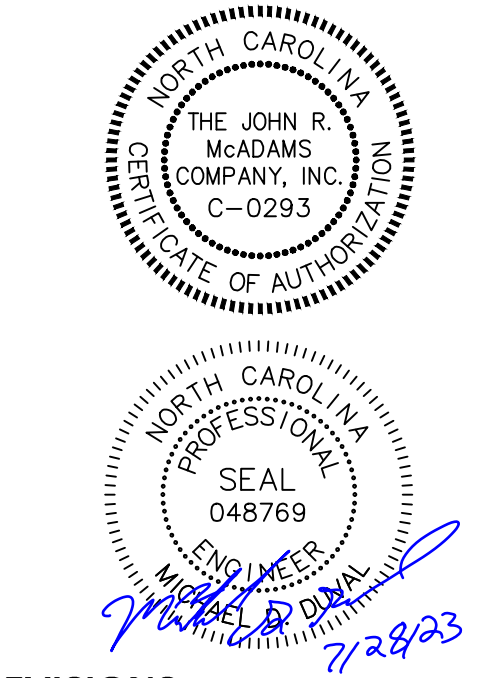
SPLASH PAD
LAYOUT PLAN

C2.01

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**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

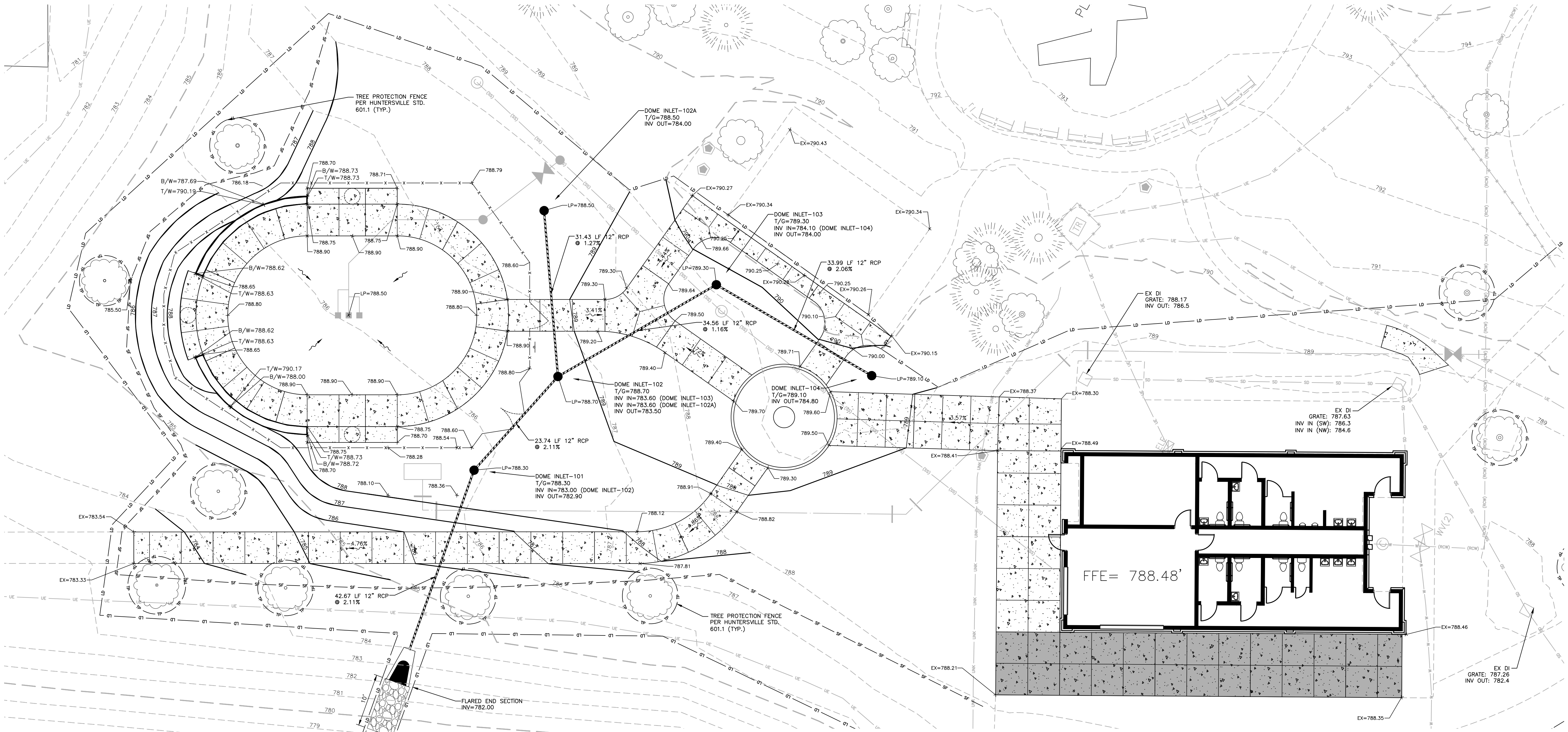
PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-G3-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE 1"=10'
DATE 07/28/2023

SHEET

GRADING PLAN

C3.00

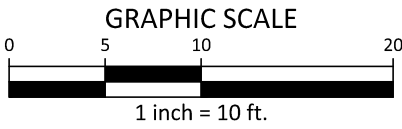


GRADING LEGEND	
	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF-DRAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
	LINE BREAK SYMBOL
	TOP & BOTTOM CURB ELEVATIONS
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
	LOW POINT SPOT ELEVATION
	HIGH POINT SPOT ELEVATION
	SPOT ELEVATION
	STORM DRAINAGE
	STORM SERVICE LINE
	ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
	TREE PROTECTION FENCE PER HUNTSVILLE STD. 601.1 (TYP.)
	LIMITS OF DISTURBANCE
	WOODED AREA
	MAJOR CONTOUR
	MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EASEMENT LINE
	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

EXISTING CONDITIONS LEGEND	
	SANITARY SEWER MANHOLE
	SANITARY SEWER CLEANOUT
	WATER VALVE
	WATER METER
	FIRE HYDRANT
	TELEPHONE PEDESTAL
	TELEPHONE MANHOLE
	ELECTRIC BOX
	LIGHT POLE
	POWER POLE
	CURB INLET
	STORM DRAINAGE MANHOLE
	YARD INLET
	GREASE PIT
	SIGN
	WATER MANHOLE
	FIBER OPTIC VAULT
	STORM DRAIN PIPE
	OVERHEAD UTILITY LINES
	WATER LINE
	SANITARY SEWER LINE
	TELEPHONE LINE
	GAS LINE
	UNDERGROUND ELECTRIC
	UNDERGROUND TELEPHONE
	FENCE LINE



CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT
LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION
OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED.
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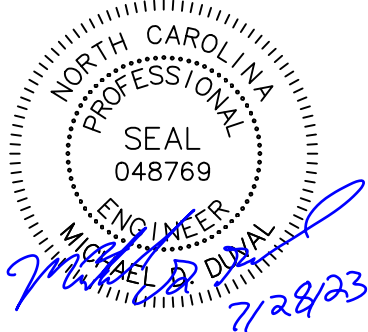
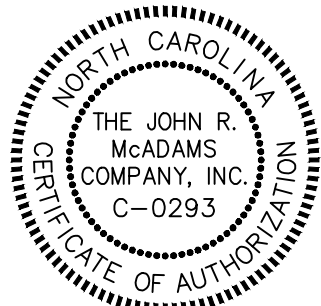
PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

CLIENT

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16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

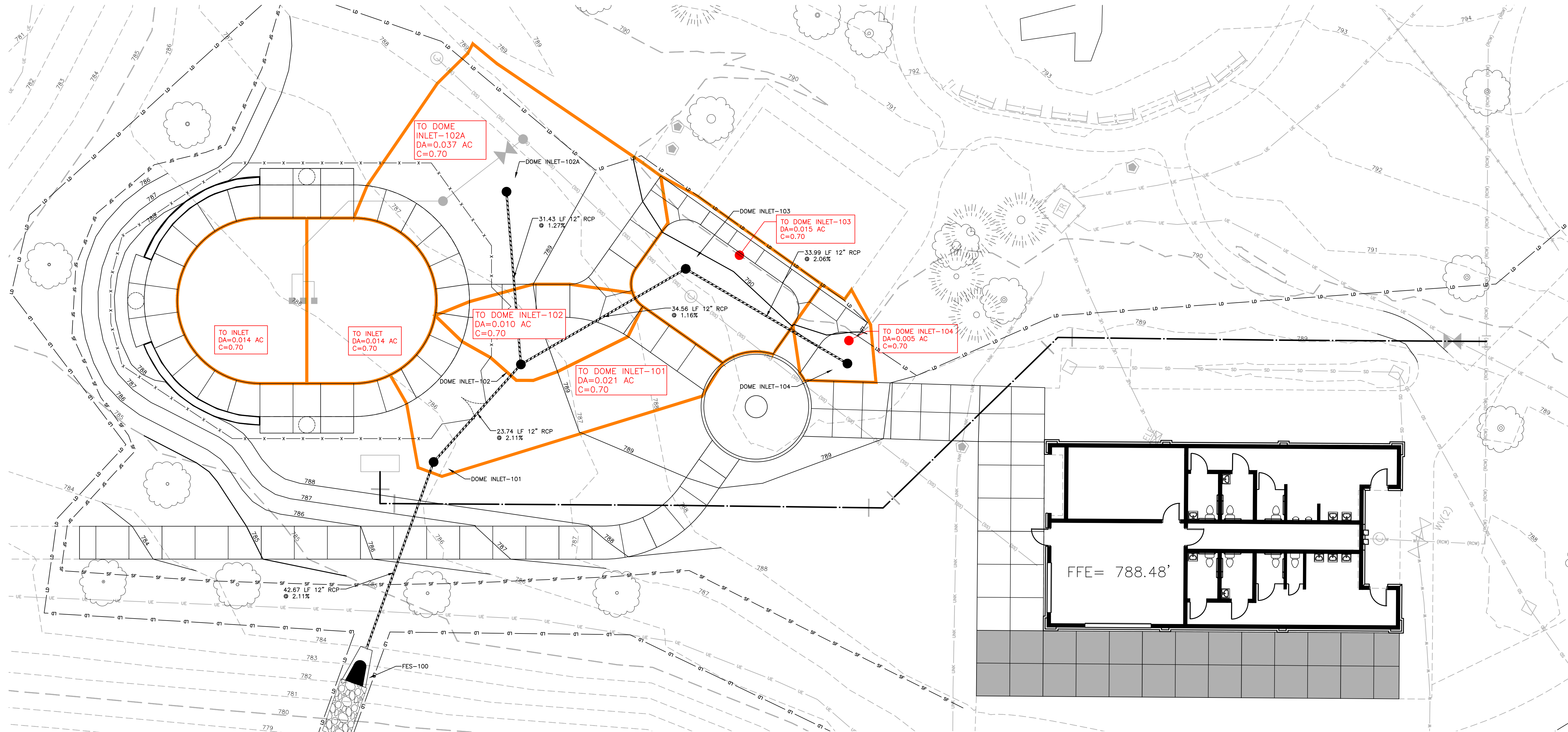
PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-DA1-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE 1"=10'
DATE 07/28/2023

SHEET

DRAINAGE AREA MAP

C3.01

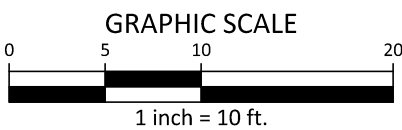


GRADING LEGEND

	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF-RAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
	LINE BREAK SYMBOL
	TOP & BOTTOM CURB ELEVATIONS
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION
	LOW POINT SPOT ELEVATION
	HIGH POINT SPOT ELEVATION
	SPOT ELEVATION
	STORM DRAINAGE
	STORM SERVICE LINE
	ROOF DRAIN, 8" ADS
	NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
	TREE PROTECTION FENCE
	LIMITS OF DISTURBANCE
	WOODED AREA
	MAJOR CONTOUR
	MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EASEMENT LINE
	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

EXISTING CONDITIONS LEGEND

	SANITARY SEWER MANHOLE		STORM DRAIN PIPE
	SANITARY SEWER CLEANOUT		OVERHEAD UTILITY LINES
	WATER VALVE		WATER LINE
	WATER METER		SANITARY SEWER LINE
	FIRE HYDRANT		TELEPHONE LINE
	TELEPHONE PEDESTAL		GAS LINE
	TELEPHONE MANHOLE		UNDERGROUND ELECTRIC
	ELECTRIC BOX		UNDERGROUND TELEPHONE
	LIGHT POLE		FENCE LINE
	POWER POLE		
	CURB INLET		
	STORM DRAINAGE MANHOLE		
	YARD INLET		
	GREASE PIT		
	SIGN		
	WATER MANHOLE		
	FIBER OPTIC VAULT		



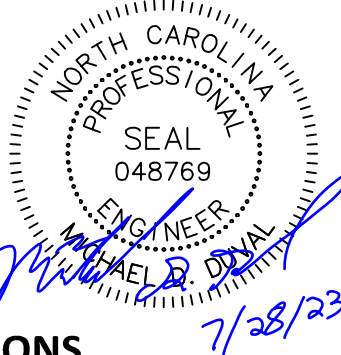
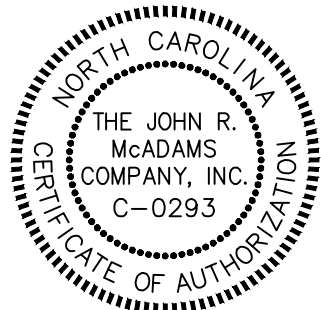
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SPLASH PAD**
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16131 OLD STATESVILLE RD
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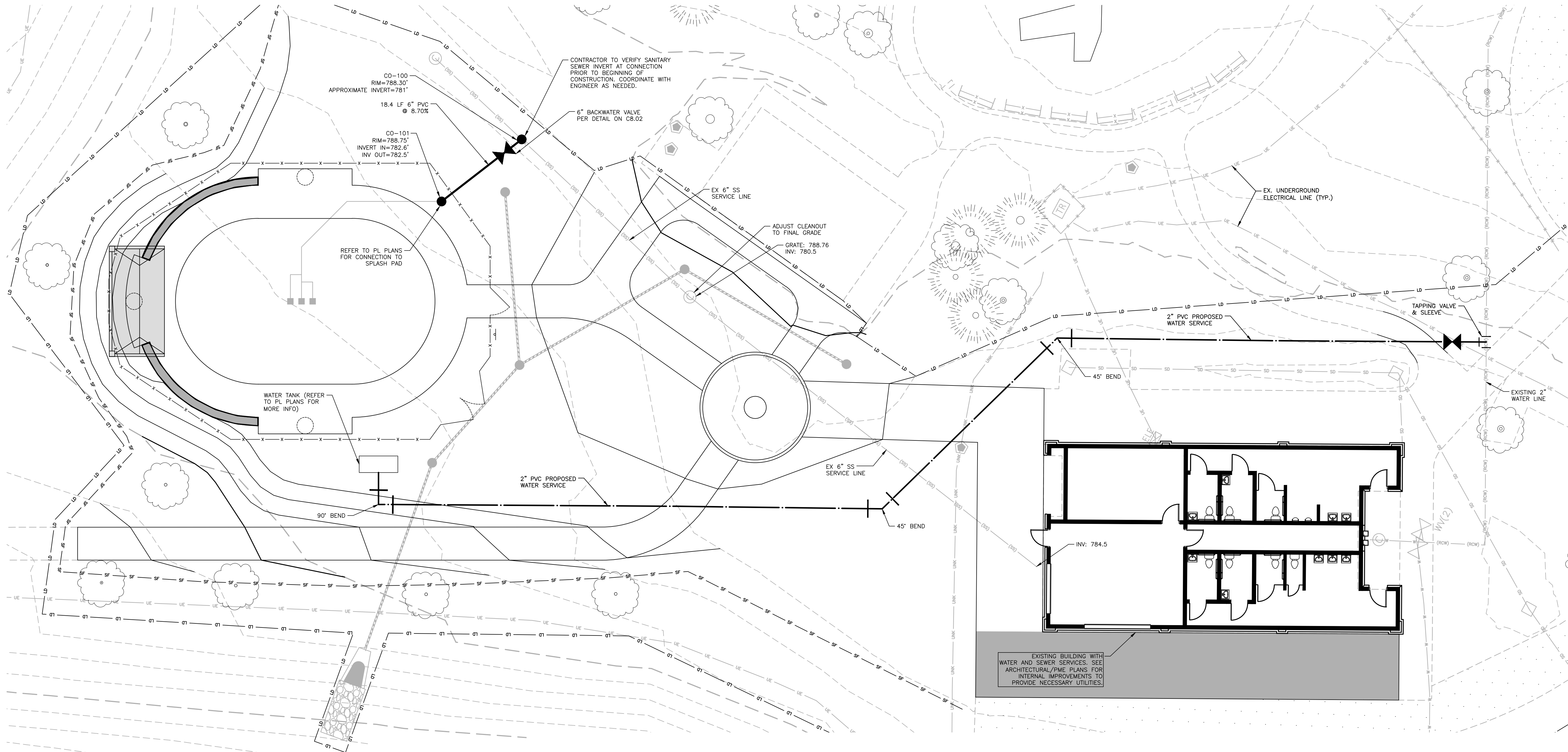
PLAN INFORMATION

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FILENAME HUN22003-U1-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE 1"=10'
DATE 07/28/2023

SHEET

UTILITY PLAN

C4.00



UTILITY LEGEND

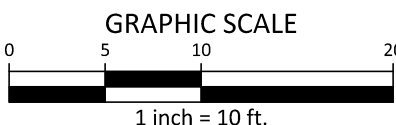
- FIRE HYDRANT ASSEMBLY
- FIRE DEPARTMENT CONNECTION (FDC)
- WATER VALVE
- METER & VAULT
- BACKFLOW PREVENTER
- REDUCER
- PLUG
- BLOW-OFF ASSEMBLY
- SANITARY SEWER MANHOLE
- SEWER CLEAN-OUT
- GREASE TRAP
- SEWER FLOW DIRECTION ARROW
- YARD LIGHTS
- LIGHT POLE
- POWER POLE
- WATERLINE
- WATER SERVICE LINE
- UTILITY SLEEVE
- SANITARY SEWER
- SEWER SERVICE LINE
- SEWER FORCE MAIN
- GAS LINE
- OVERHEAD UTILITY
- UNDERGROUND ELECTRIC
- TELEPHONE
- EASEMENT LINE

EXISTING CONDITIONS LEGEND

- SD STORM DRAIN PIPE
- OU OVERHEAD UTILITY LINES
- W WATER LINE
- SS SANITARY SEWER LINE
- T TELEPHONE LINE
- G GAS LINE
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE
- X FENCE LINE



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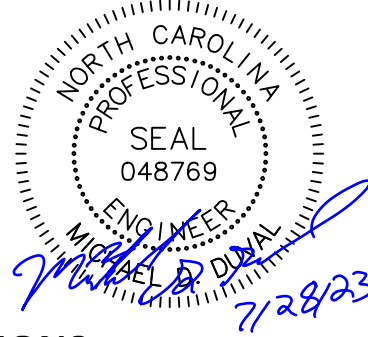
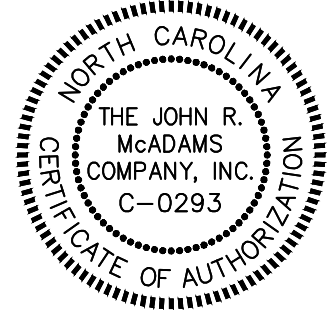


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HUNTERSVILLE, NC 28078
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**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

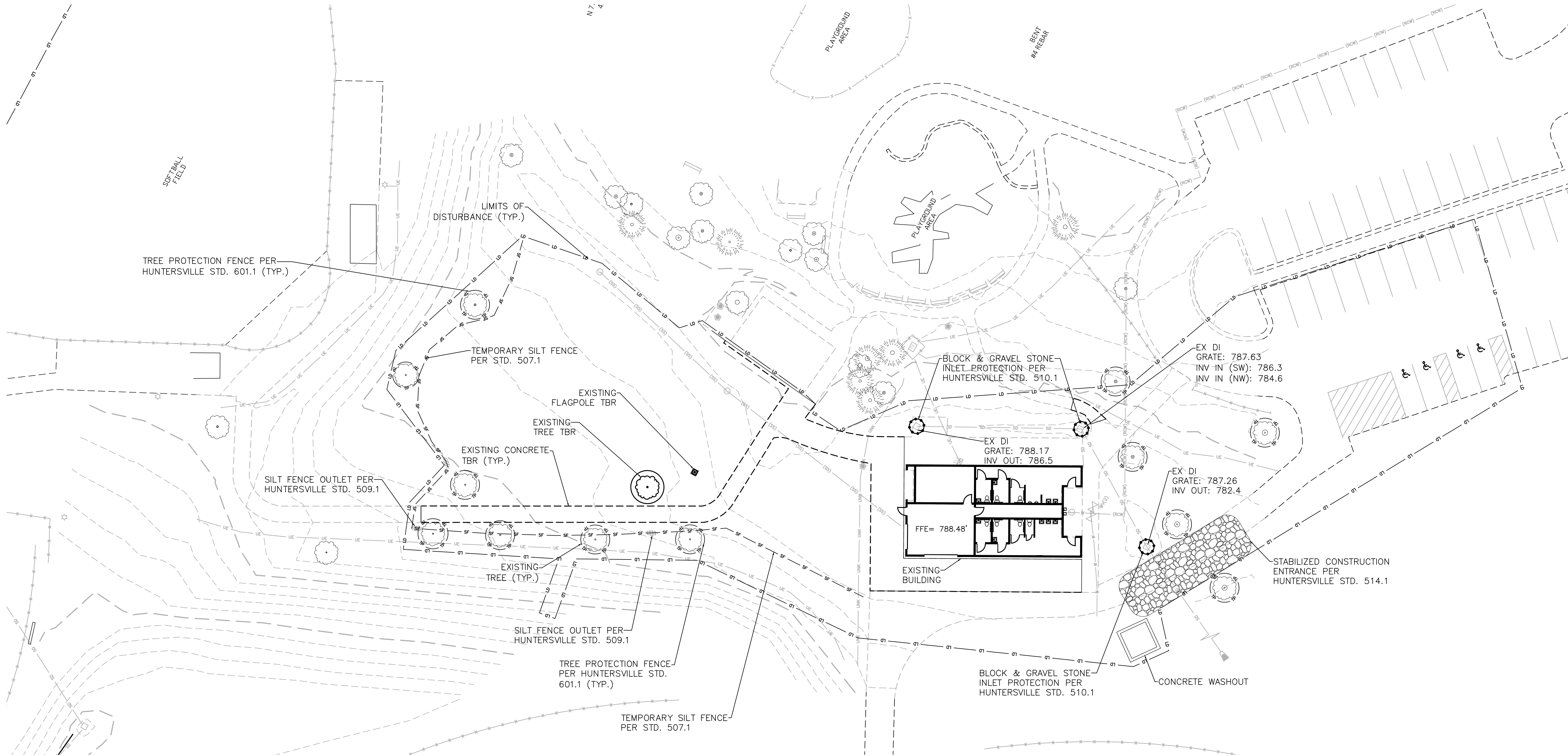
PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-EC1-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE 1"=20'
DATE 07/28/2023

SHEET

EROSION & CONTROL PLAN
STAGE I

C6.00



EROSION CONTROL LEGEND

- SILT FENCE OUTLET
- INLET PROTECTION
- INLET PROTECTION FOR EXISTING STRUCTURES
- CHECK DAM
- EMBANKMENT MATTING
- SILT FENCE
- TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- WOODED AREA

DEMOLITION LEGEND

- TREE OR OTHER VEGETATION TO BE REMOVED
 - UNDERGROUND UTILITY TO BE REMOVED
 - AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.)
- NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES, SEQUENCING AND SPECIFICATIONS.
- CONTRACTOR TO COORDINATE ALL UTILITY DISCONNECTS REQUIRED ON EXISTING STRUCTURES THAT ARE TO BE DEMOLISHED. (FEEL FREE TO RE-WORD AS YOU SEE FIT.)

GROUND STABILIZATION

SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HQW ZONES)

DISTURBED AREA =0.82 AC.

GRADING LEGEND

- FLARED END SECTION
- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF-DRAIN
- JUNCTION BOX
- DRAINAGE FLOW ARROW
- LINE BREAK SYMBOL
- TOP & BOTTOM CURB ELEVATIONS
- TOP OF WALL ELEVATION
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- SPOT ELEVATION
- STORM DRAINAGE
- STORM SERVICE LINE
- ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
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- LIMITS OF DISTURBANCE
- WOODED AREA
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- MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

EXISTING CONDITIONS LEGEND

- SANITARY SEWER MANHOLE
- SANITARY SEWER CLEANOUT
- WATER VALVE
- WATER METER
- FIRE HYDRANT
- TELEPHONE PEDESTAL
- TELEPHONE MANHOLE
- ELECTRIC BOX
- LIGHT POLE
- POWER POLE
- CURB INLET
- STORM DRAINAGE MANHOLE
- YARD INLET
- GREASE PIT
- SIGN
- WATER MANHOLE
- FIBER OPTIC VAULT
- SD STORM DRAIN PIPE
- OU OVERHEAD UTILITY LINES
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PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



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2100 South Tryon Street
Suite 400
Charlotte, NC 28203
phone 704. 527. 0800
fax 919. 361. 2269
license number: C-0293, C-187

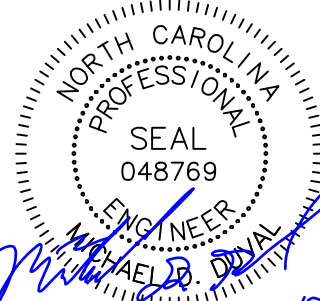
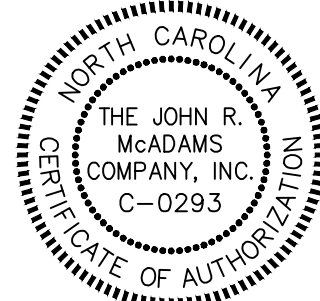
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16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003

FILENAME HUN22003-EC1-North Mecklenburg Park.dwg

CHECKED BY MDD

DRAWN BY JRD

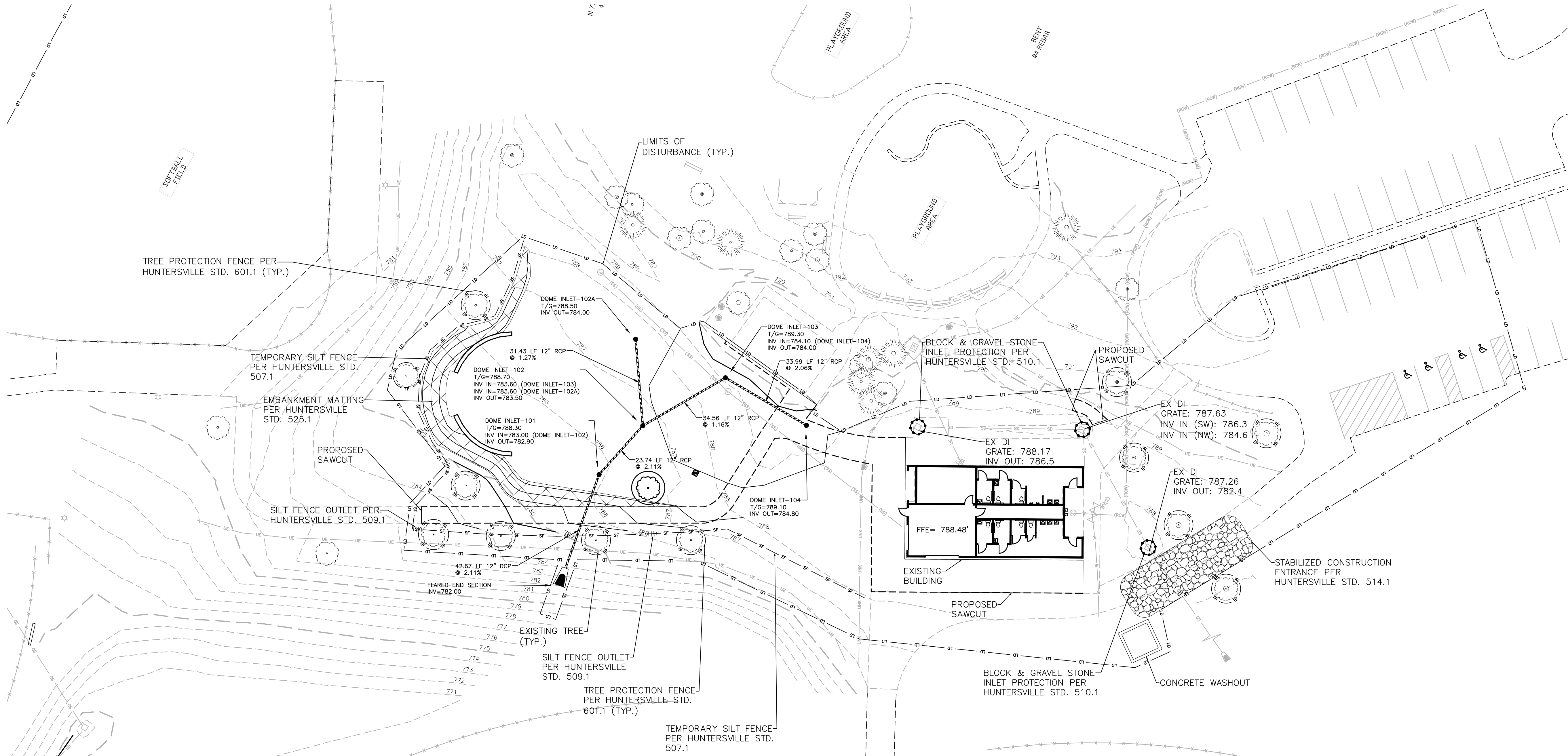
SCALE 1"=20'

DATE 07/28/2023

SHEET

EROSION & CONTROL PLAN
STAGE II

C6.01



EROSION CONTROL LEGEND

- SILT FENCE OUTLET
- INLET PROTECTION
- INLET PROTECTION FOR EXISTING STRUCTURES
- CHECK DAM
- EMBANKMENT MATTING
- SILT FENCE
- TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- WOODED AREA

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
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GRADING LEGEND

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- ENDWALL SECTION
- CATCH BASIN
- DROP INLET
- STORM SERVICE INLET
- STORM SERVICE ROOF-DRAIN
- JUNCTION BOX
- DRAINAGE FLOW ARROW
- LINE BREAK SYMBOL
- TOP & BOTTOM CURB ELEVATIONS
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- BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
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- STORM DRAINAGE
- STORM SERVICE LINE
- ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
- TREE PROTECTION FENCE
- LIMITS OF DISTURBANCE
- WOODED AREA
- MAJOR CONTOUR
- MINOR CONTOUR
- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- EASEMENT LINE
- ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

EXISTING CONDITIONS LEGEND

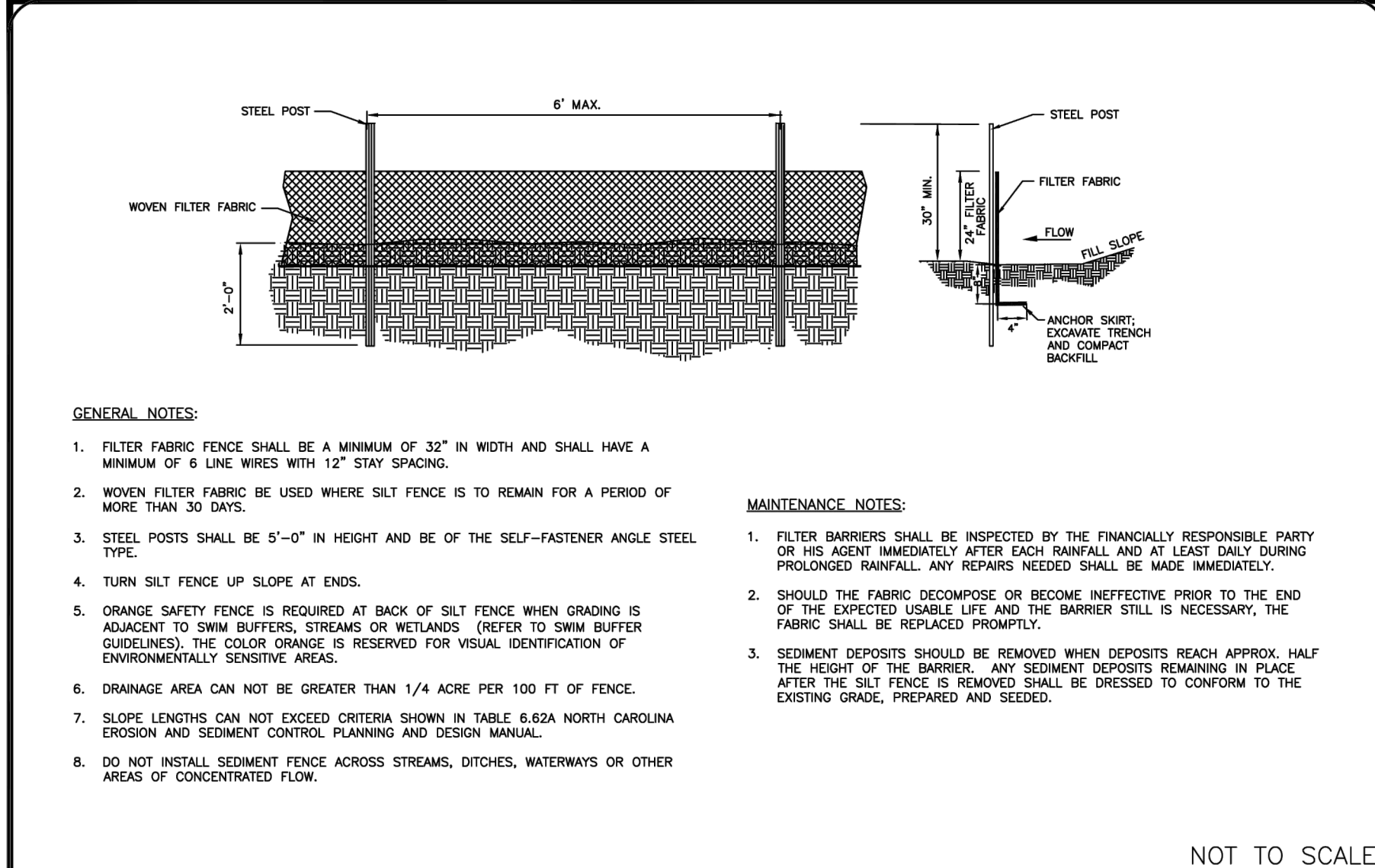
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- SANITARY SEWER CLEANOUT
- WATER VALVE
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- TELEPHONE PEDESTAL
- TELEPHONE MANHOLE
- ELECTRIC BOX
- LIGHT POLE
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- CURB INLET
- STORM DRAINAGE MANHOLE
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- GREASE PIT
- SIGN
- WATER MANHOLE
- FIBER OPTIC VAULT
- SD STORM DRAIN PIPE
- OU OVERHEAD UTILITY LINES
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- G GAS LINE
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- X FENCE LINE



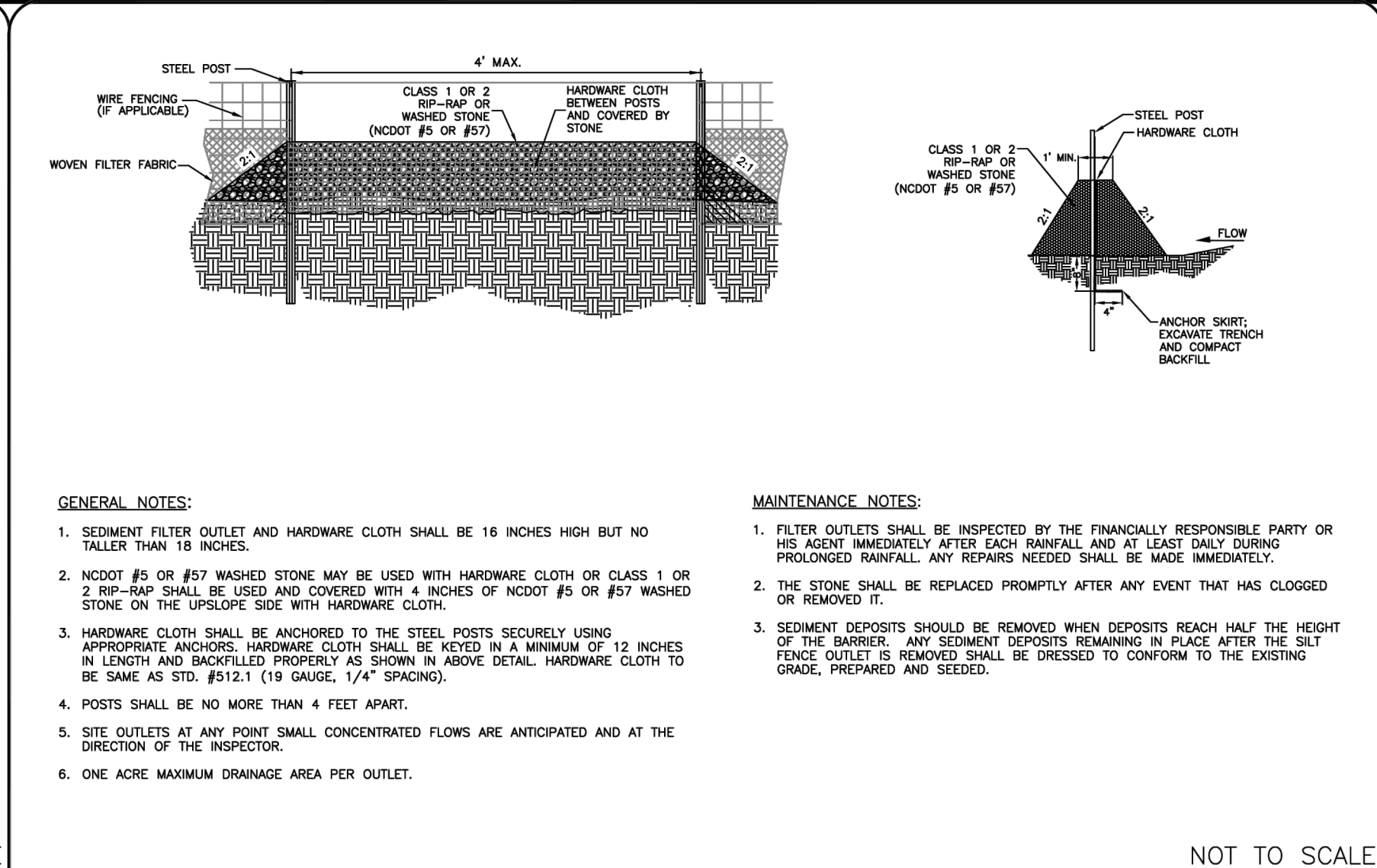
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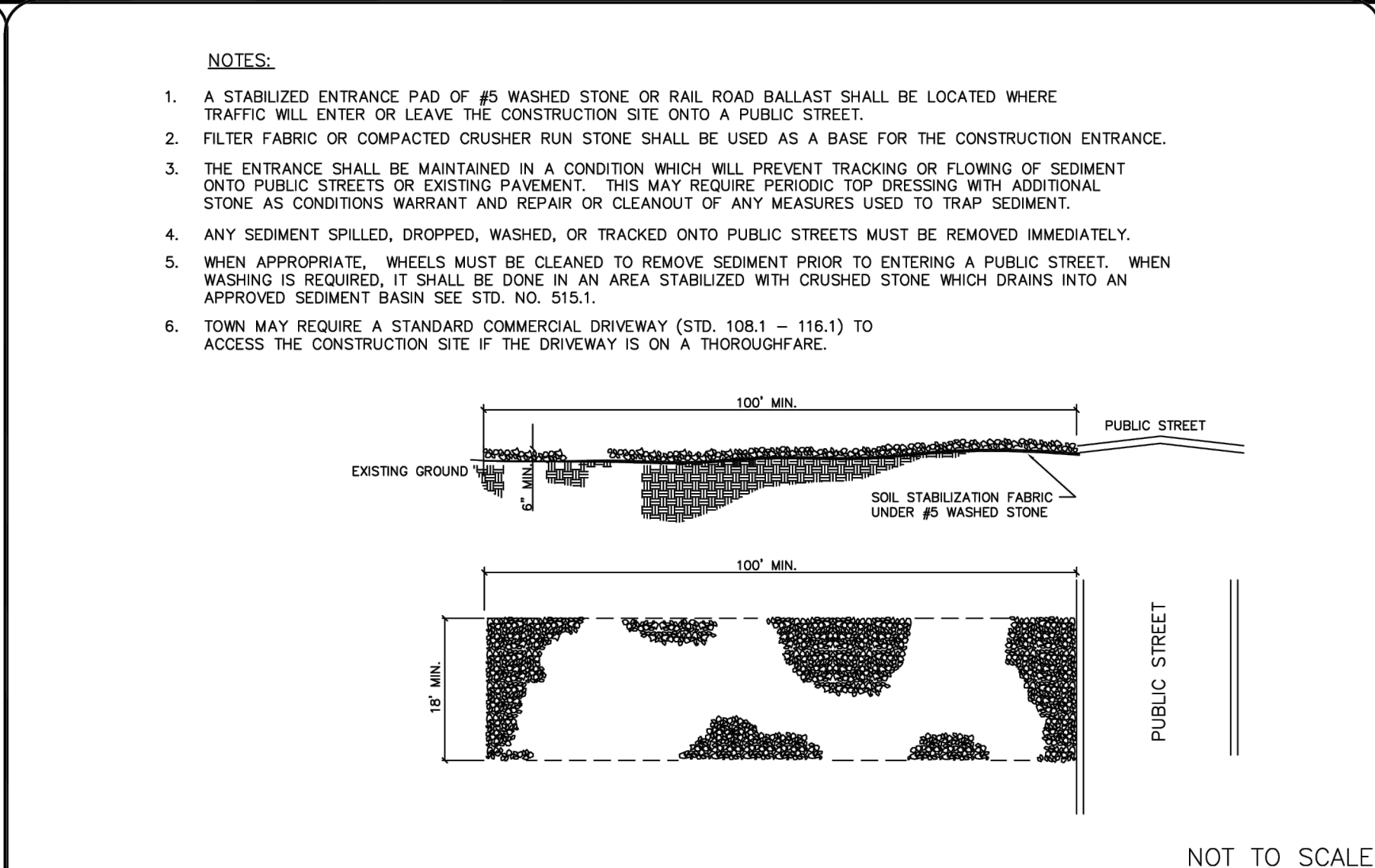
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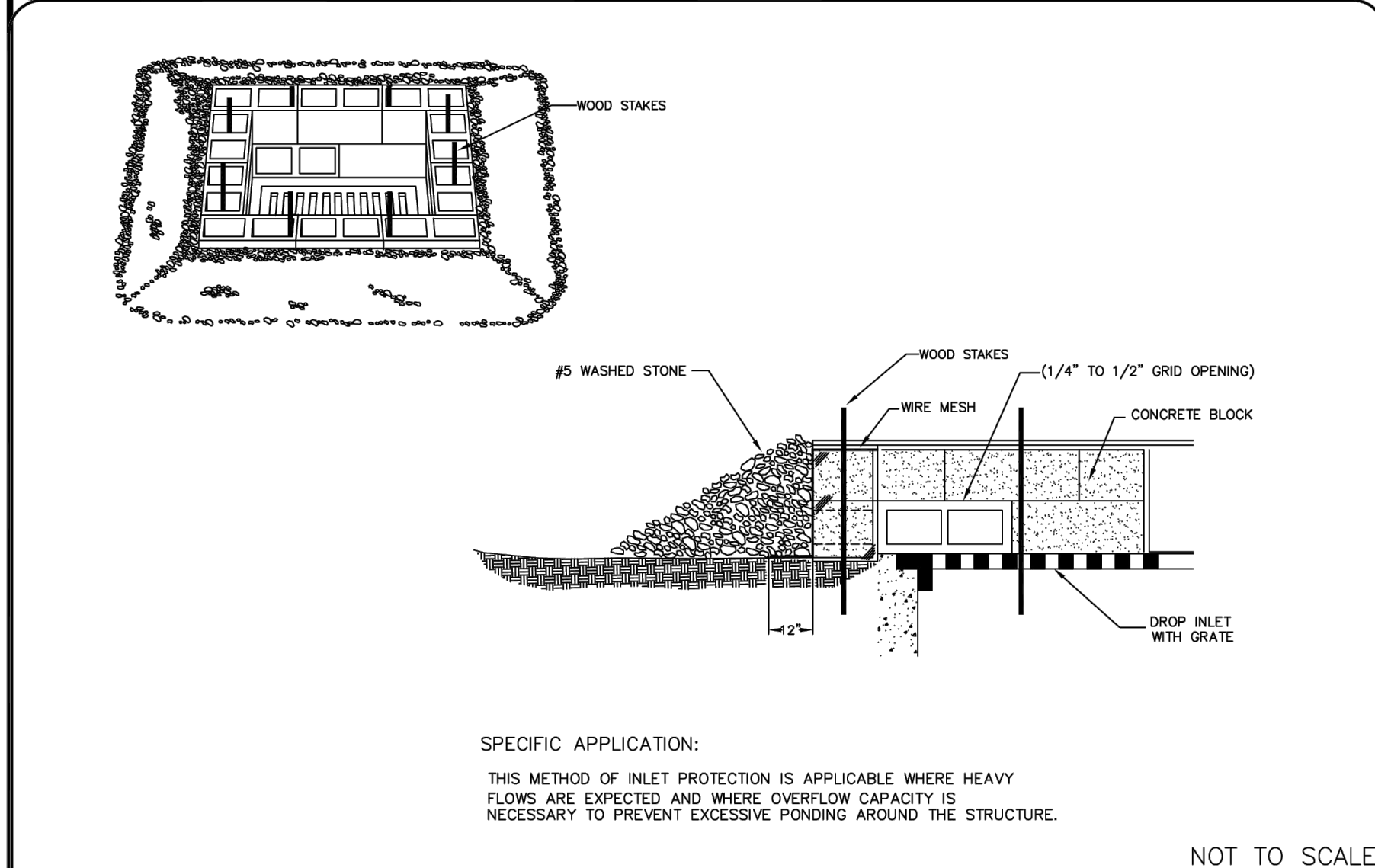
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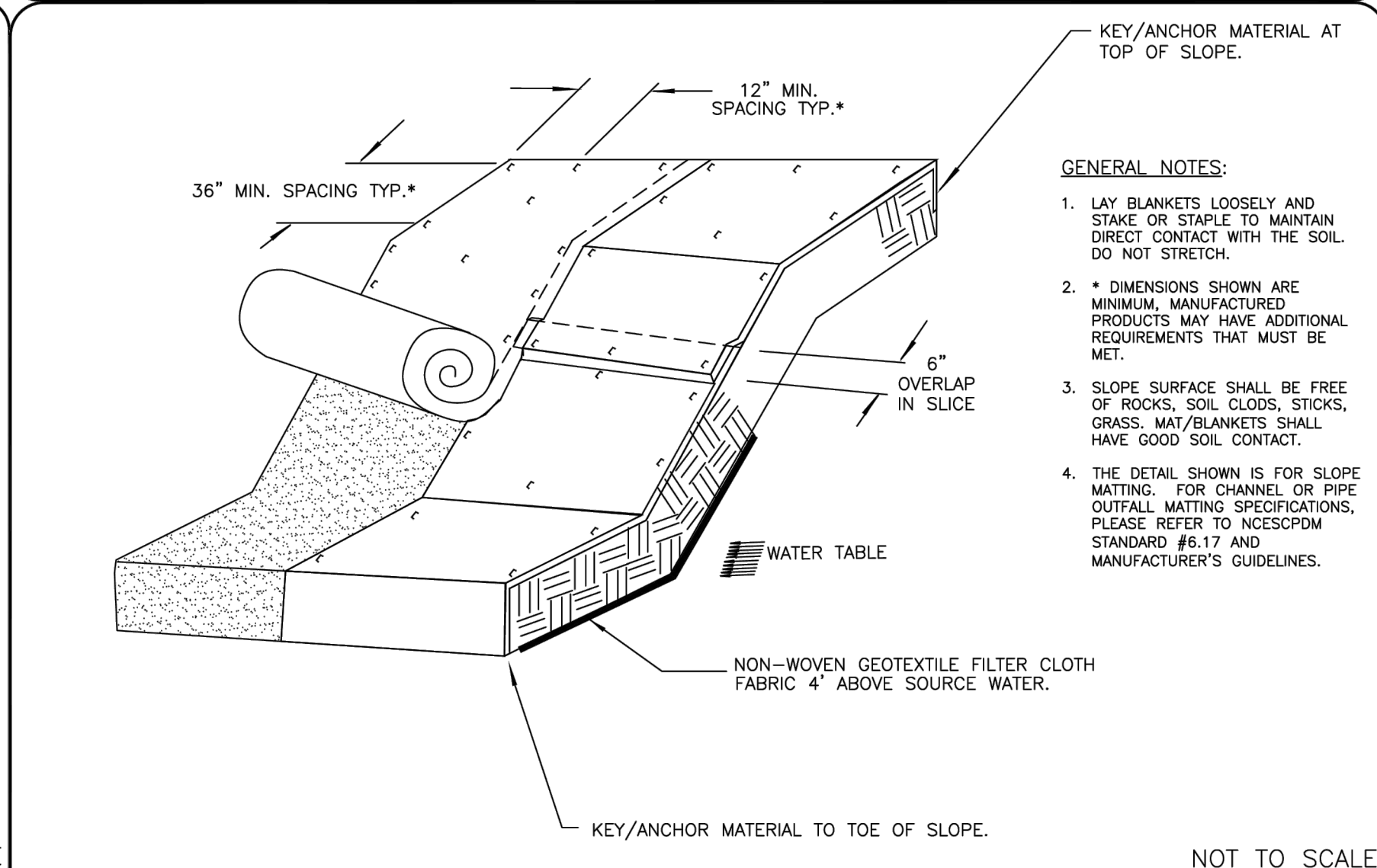
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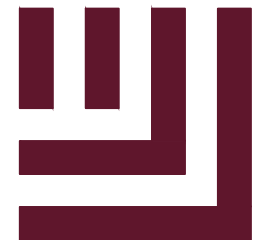
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 TOWN OF HUNTERSVILLE NORTH CAROLINA	STANDARD DRAWING	BLOCK AND GRAVEL STONE INLET PROTECTION	REV. DATE
			10/14/09
			STD. NO.
			510.1



 TOWN OF HUNTERSVILLE NORTH CAROLINA	STANDARD DRAWING	EMBANKMENT MATTING DETAIL	REV. DATE
			10/14/09
			STD. NO.
			525.1



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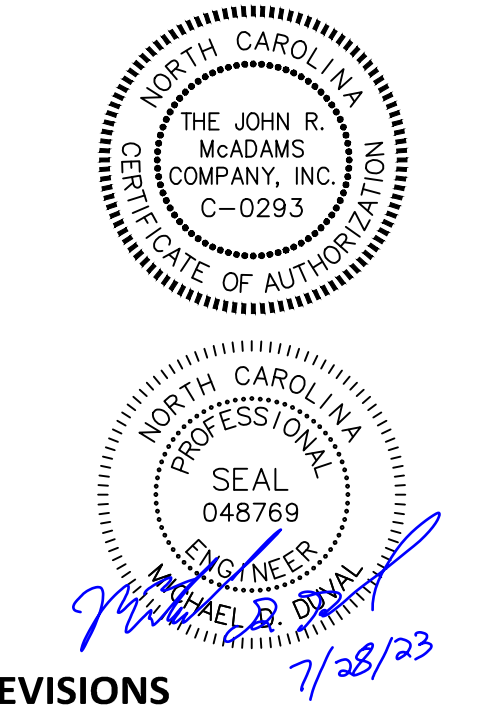
TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704.875.6541



TOWN OF
HUNTERSVILLE
NORTH CAROLINA

**NORTH MECKLENBURG PARK
SPLASH PAD**

CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



7/28/23

REVISIONS	
NO.	DATE

PLAN INFORMATION

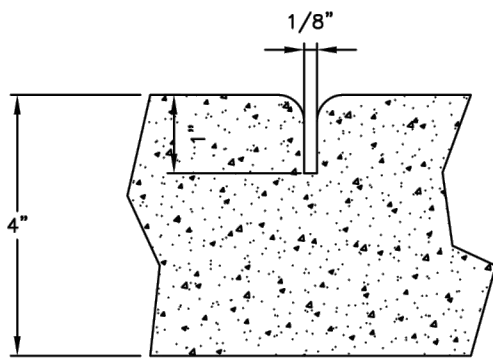
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DRAWN BY	JRD
SCALE	N/A
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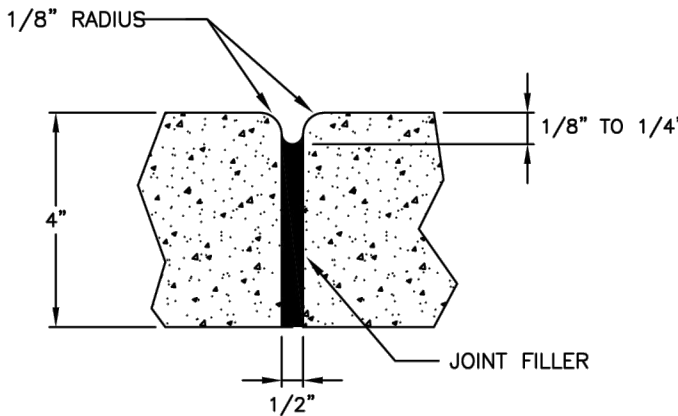
**EROSION & SEDIMENT
CONTROL DETAILS**

C6.02

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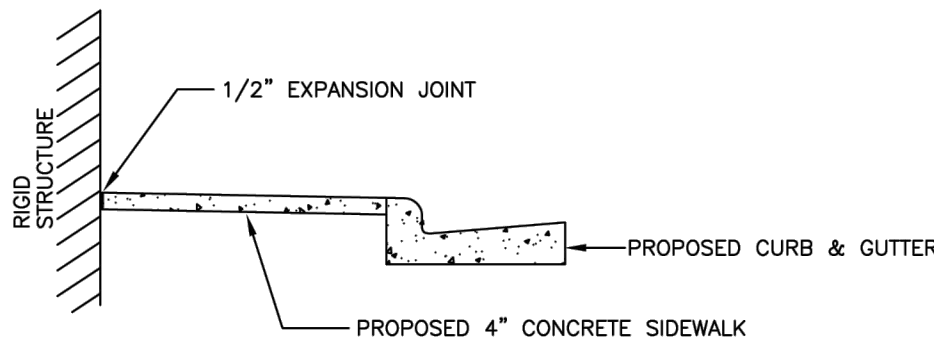
GROOVE JOINT IN SIDEWALK



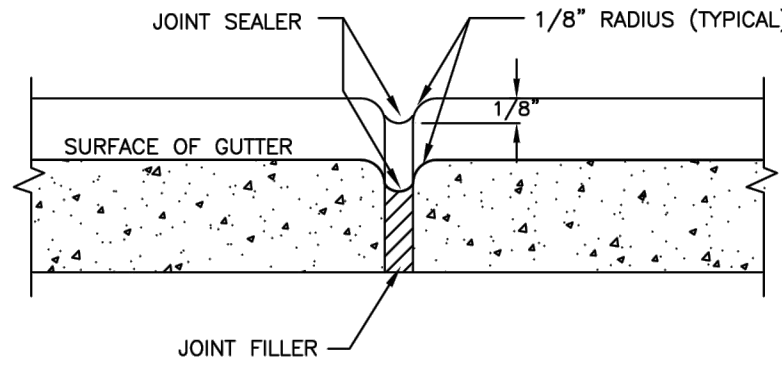
TRANSVERSE EXPANSION JOINT IN SIDEWALK

GENERAL NOTES:

1. A GROOVE JOINT 1" DEEP WITH 1/8" RADII SHALL BE REQUIRED IN THE CONCRETE SIDEWALK AT 5' INTERVALS. ONE 1/2" EXPANSION JOINT WILL BE REQUIRED AT 45' INTERVALS NOT TO EXCEED 50' AND MATCHING EXPANSION/CONSTRUCTION JOINT IN ADJACENT CURB. A SEALED 1/2" EXPANSION JOINT WILL BE REQUIRED WHERE THE SIDEWALK JOINS ANY RIGID STRUCTURE.
2. SIDEWALK AT DRIVEWAY ENTRANCES TO BE 6" THICK.
3. WIDTH OF SIDEWALK ON TOWN STREETS SHALL BE A MINIMUM OF 5'.
4. WIDTH OF SIDEWALKS ON NON-TOWN STREETS SHALL BE A MINIMUM OF 5'.
5. SIDEWALK TO BE POURED TO END OF RADIUS AT INTERSECTING STREETS.
6. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 PSI. IN 28 DAYS.
7. ZONING CONDITIONS MAY REQUIRE ADDITIONAL WIDTH SIDEWALKS WHICH SHALL SUPERSEDE THESE STANDARD DIMENSIONS SHOWN.



DETAILS SHOWING EXPANSION JOINTS FOR CONCRETE SIDEWALK



TRANSVERSE EXPANSION JOINT

NOTES:

1. CONTRACTION JOINTS SHALL BE SPACED AT 10-FOOT INTERVALS. FOR VALLEY GUTTER, A 10-FOOT SPACING MAY BE USED WHEN A MACHINE IS USED. JOINT SPACING MAY BE ALTERED BY THE TOWN ENGINEER TO PREVENT UNCONTROLLED CRACKING.
2. CONTRACTION JOINTS MAY BE INSTALLED BY THE USE OF TEMPLATES OR FORMED BY OTHER APPROVED METHODS. WHERE SUCH JOINTS ARE NOT FORMED BY TEMPLATES, A MINIMUM DEPTH OF 1 1/2" SHALL BE OBTAINED.
3. ALL EXPANSION JOINTS SHALL BE SPACED AT 90-FOOT INTERVALS, AND ADJACENT TO ALL RIGID OBJECTS. JOINTS SHALL MATCH LOCATIONS WITH JOINTS IN ABUTTING SIDEWALK.
4. CONCRETE COMPRESSIVE STRENGTH SHALL BE 3600 P.S.I. IN 28 DAYS.
5. CURB SHALL BE DEPRESSED AT INTERSECTIONS TO PROVIDE FOR FUTURE ACCESSIBLE RAMPS.
6. TOP 6" OF SUBGRADE BENEATH THE CURB AND GUTTER SHALL BE COMPACTED TO 100% STANDARD PROCTOR DENSITY.

CONCRETE CONTRACTION JOINT



STANDARD
DRAWING

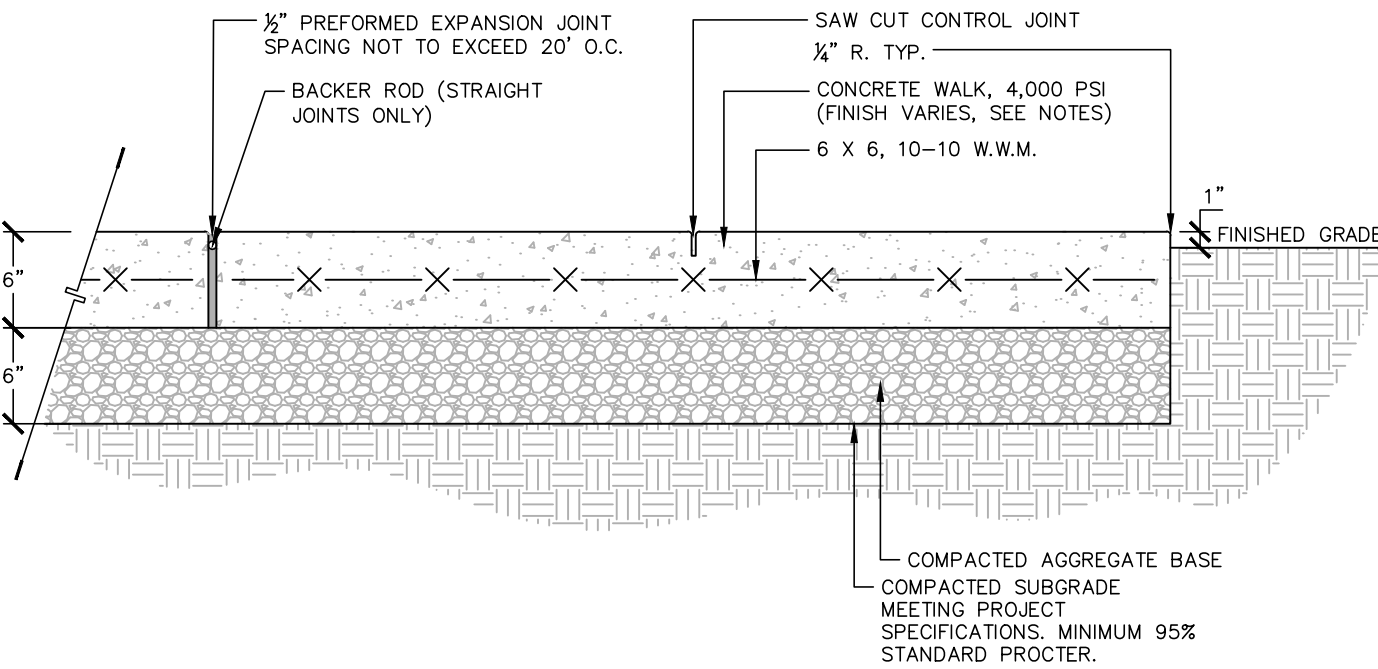
CONCRETE SIDEWALKS
DETAILS AND NOTES

REV. DATE
10/15/09
STD. NO.
106.1



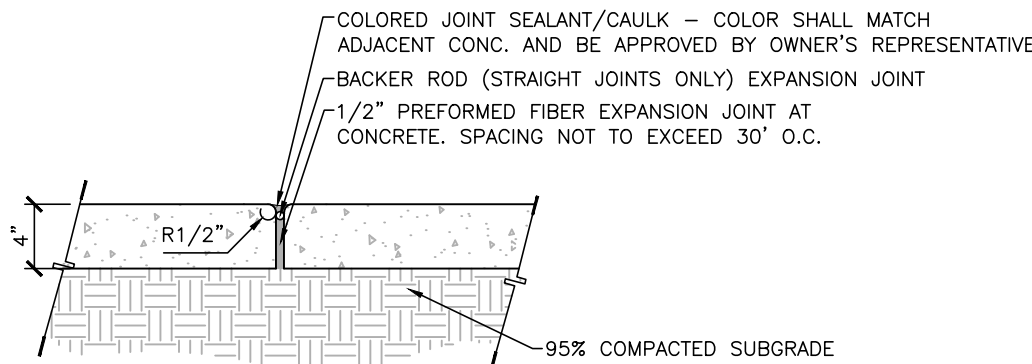
STANDARD
DRAWING

REV. DATE
10/15/09
STD. NO.
102.1



NOTES:

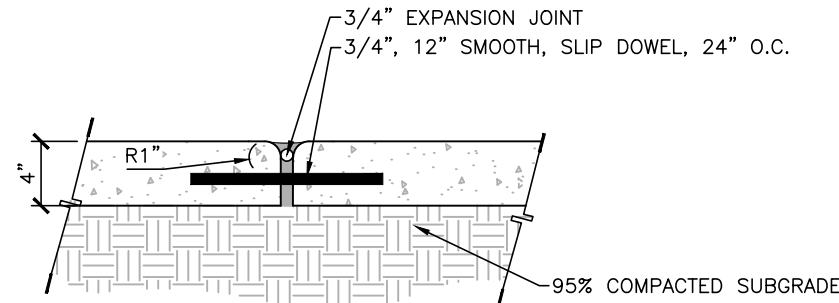
1. ALL EXPANSION JOINTS SHALL BE GROUTED AND SEALED TO WITHIN THE 1/4" VERTICAL RISE TOLERANCE FOR ADA ACCESSIBILITY.
2. ALL WALKS AND CONCRETE SURFACES SHALL HAVE POSITIVE DRAINAGE. SEE GRADING PLAN.
3. CONCRETE FINISH: COARSE BRUSHED BROOM FINISH, PERPENDICULAR TO TRAVEL PATH. SAW CUT JOINTS AND EDGE RADII AS SPECIFIED.
4. SEE STRUCTURAL SPECIFICATIONS FOR CONCRETE DETAILS.



NOTES:

1. EXPANSION JOINTS SHALL BE INSTALLED WHERE CONCRETE PAVEMENT ABUTS ALL VERTICAL SURFACES INCLUDING BUT NOT LIMITED TO ALL BUILDINGS, STRUCTURES, GRANITE SLABS, BOULDERS, CURBS, COLUMNS, WALLS, LIGHT POLES, ETC.
2. WHERE CONCRETE PAVEMENT ABUTS A RIGID STRUCTURE, JOINT SHALL BE WATERTIGHT.
3. EXPANSION JOINTS SHALL NOT EXCEED 30' O.C. (IF NOT SHOWN).
4. ALL EXPANSION JOINTS SHALL BE GROUTED AND SEALED TO WITHIN THE 1/4" VERTICAL RISE TOLERANCE FOR ADA ACCESSIBILITY. SEALANT COLOR TO MATCH CONCRETE.

EXPANSION JOINT



NOTES:

1. USE SPEED DOWEL SLEEVE / BASE OR OTHER APPROVED DOWEL AND SLEEVE SYSTEM.
2. SEE PLANS AND DETAILS FOR LOCATION OF DOWELED CONCRETE SURFACES AND SUB BASES.

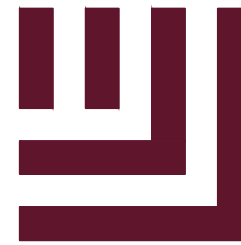
DOWELED JOINT

01 HEAVY DUTY CONCRETE PAVING

SCALE: 1"=1'-0"

02 TYPICAL CONCRETE EXPANSION AND DOWELED JOINTS

SCALE: 1"=1'-0"



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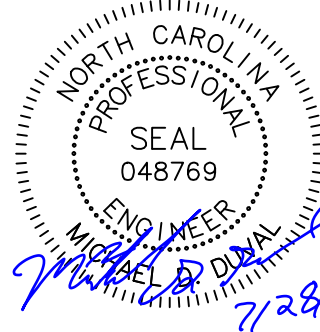
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NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-D1-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE N/A
DATE 07/28/2023

SHEET

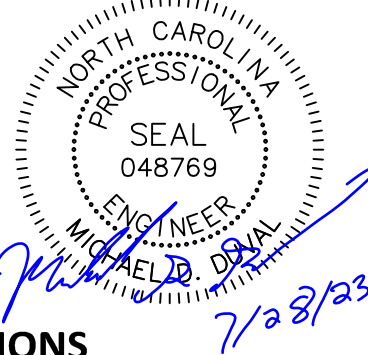
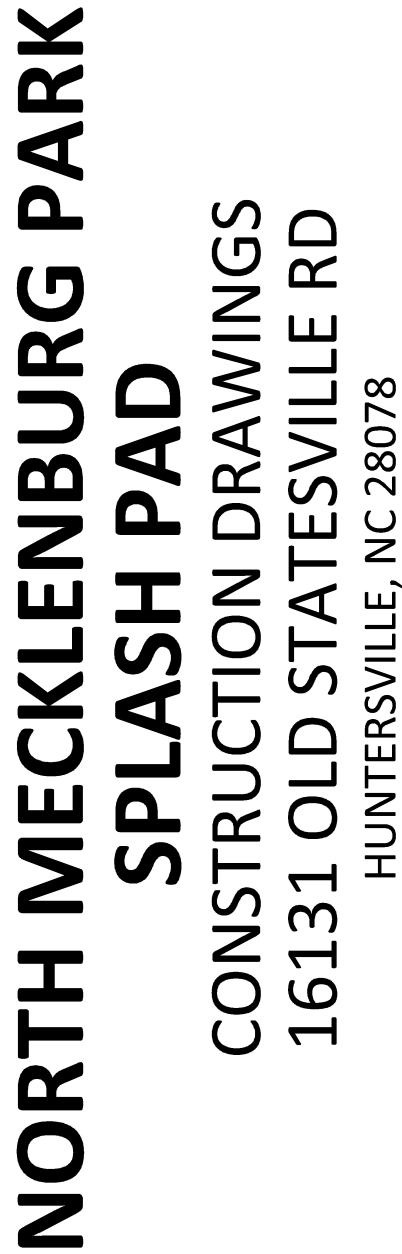
SITE DETAILS
C8.00

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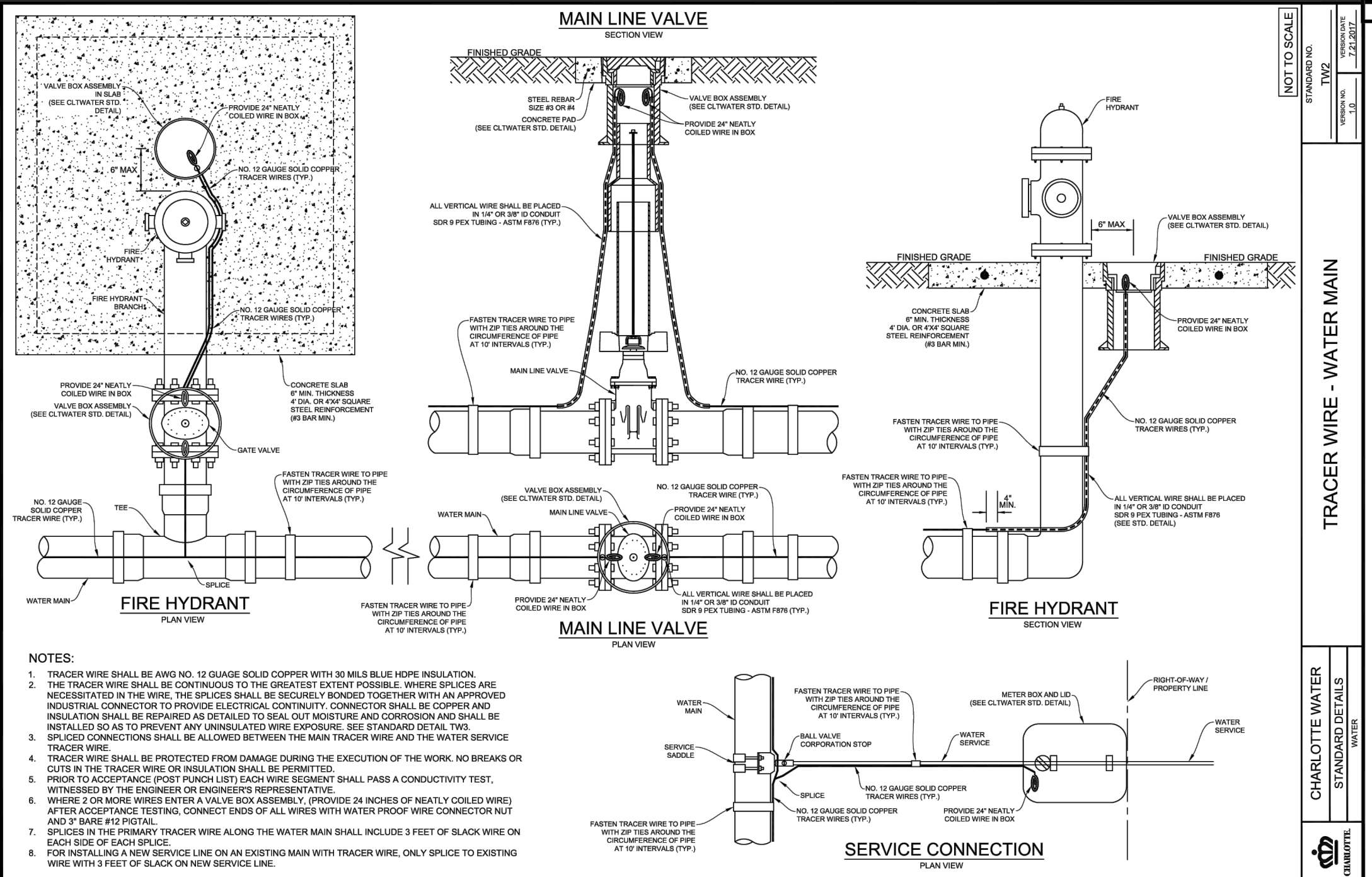
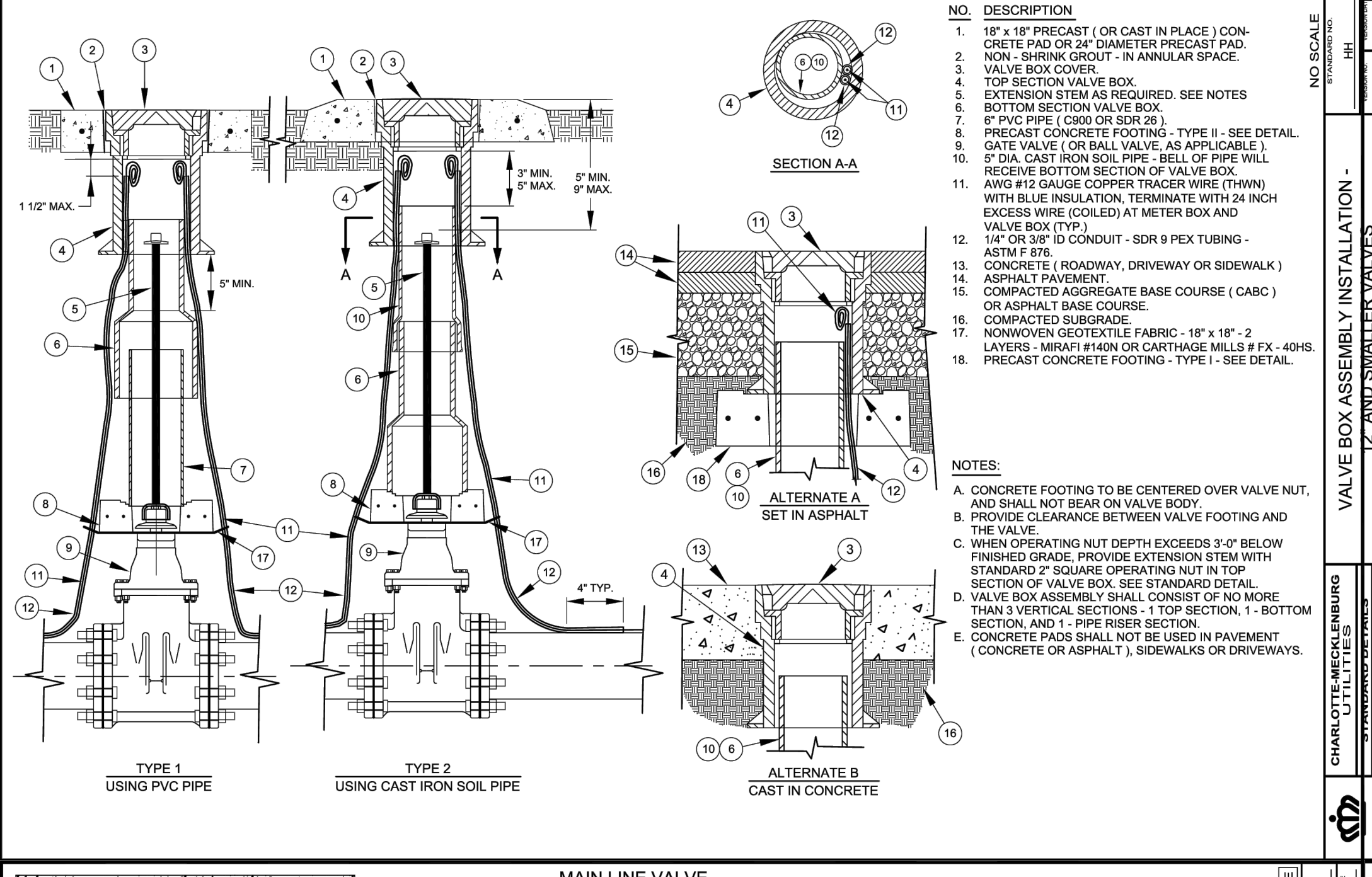
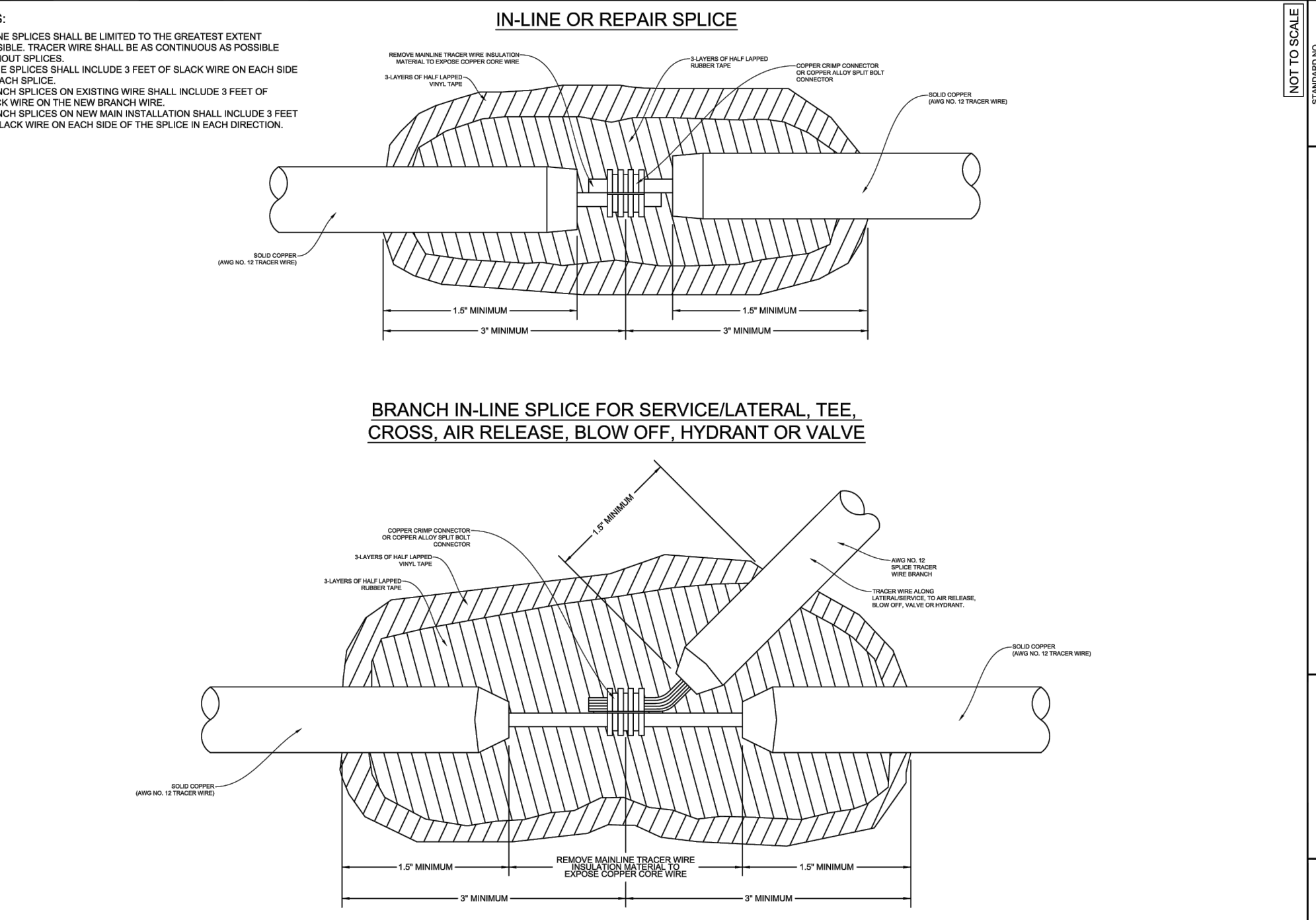


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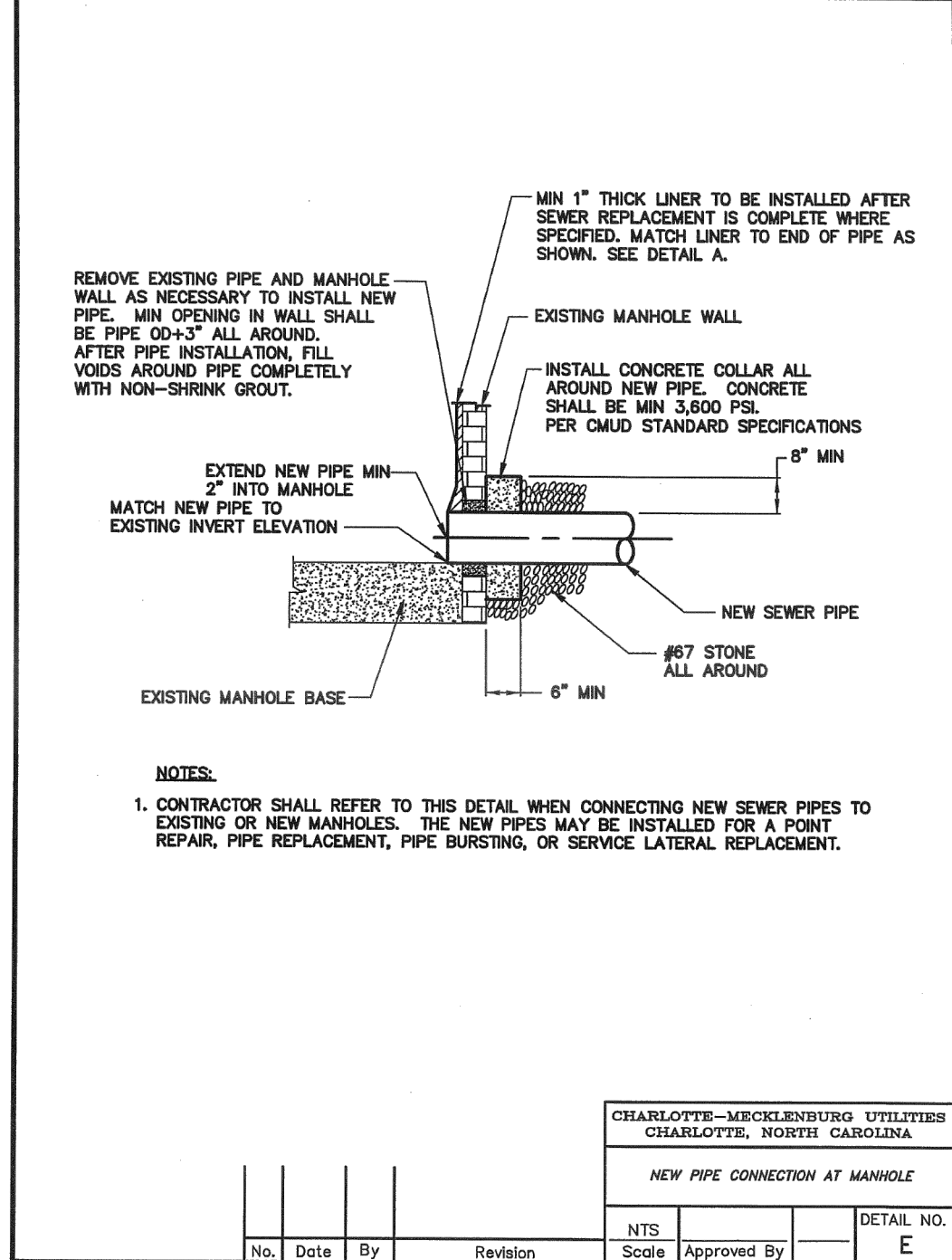
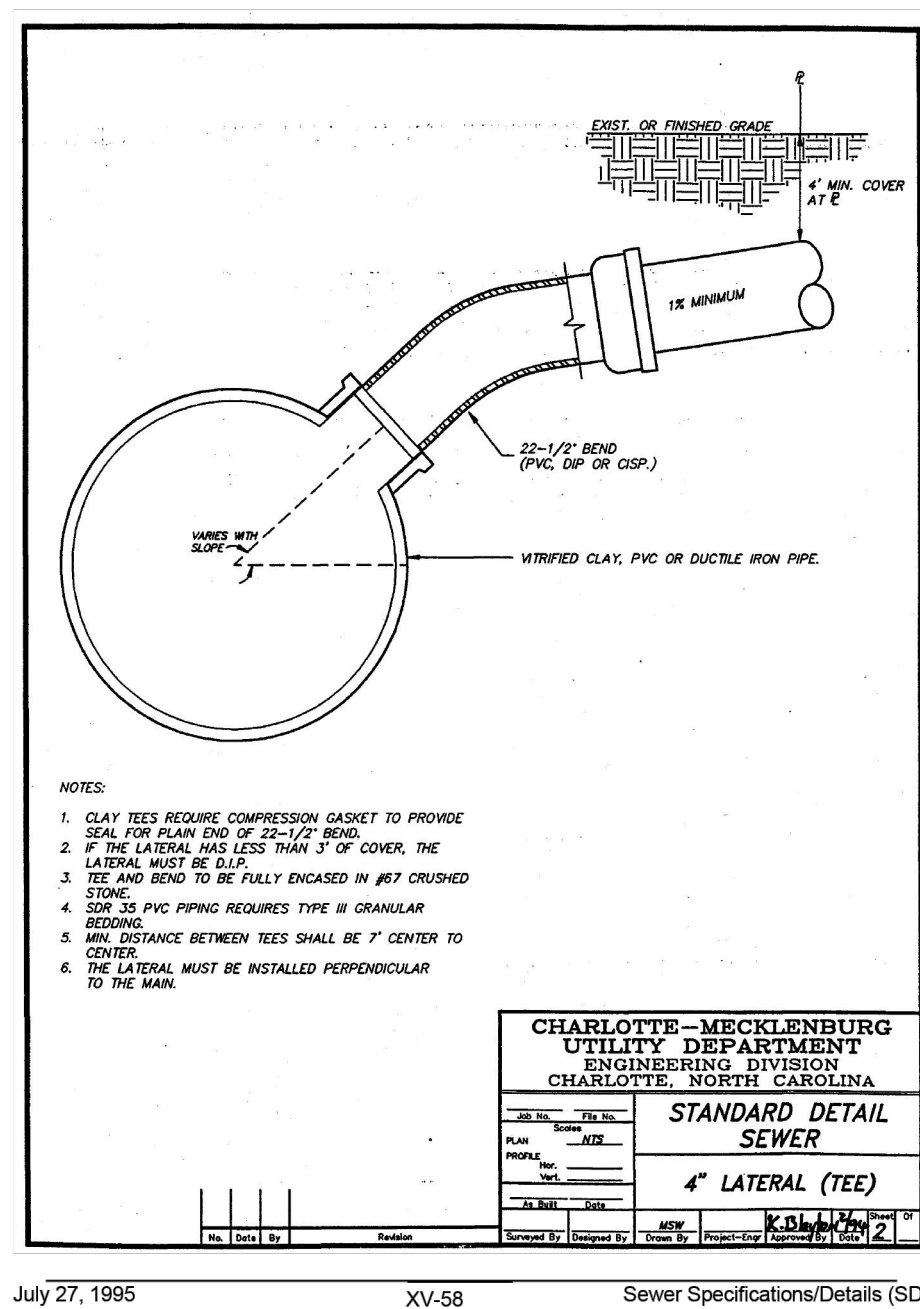
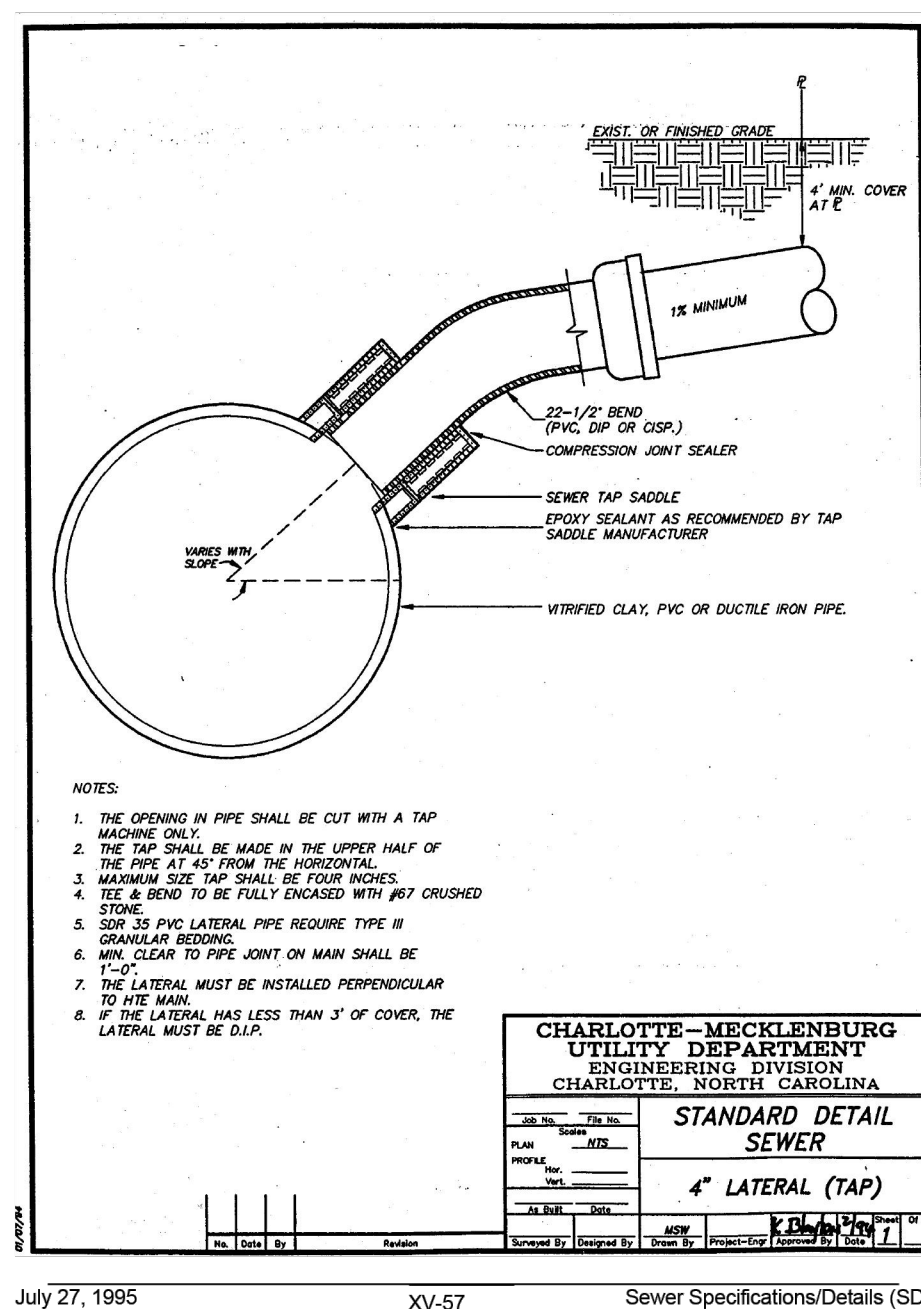
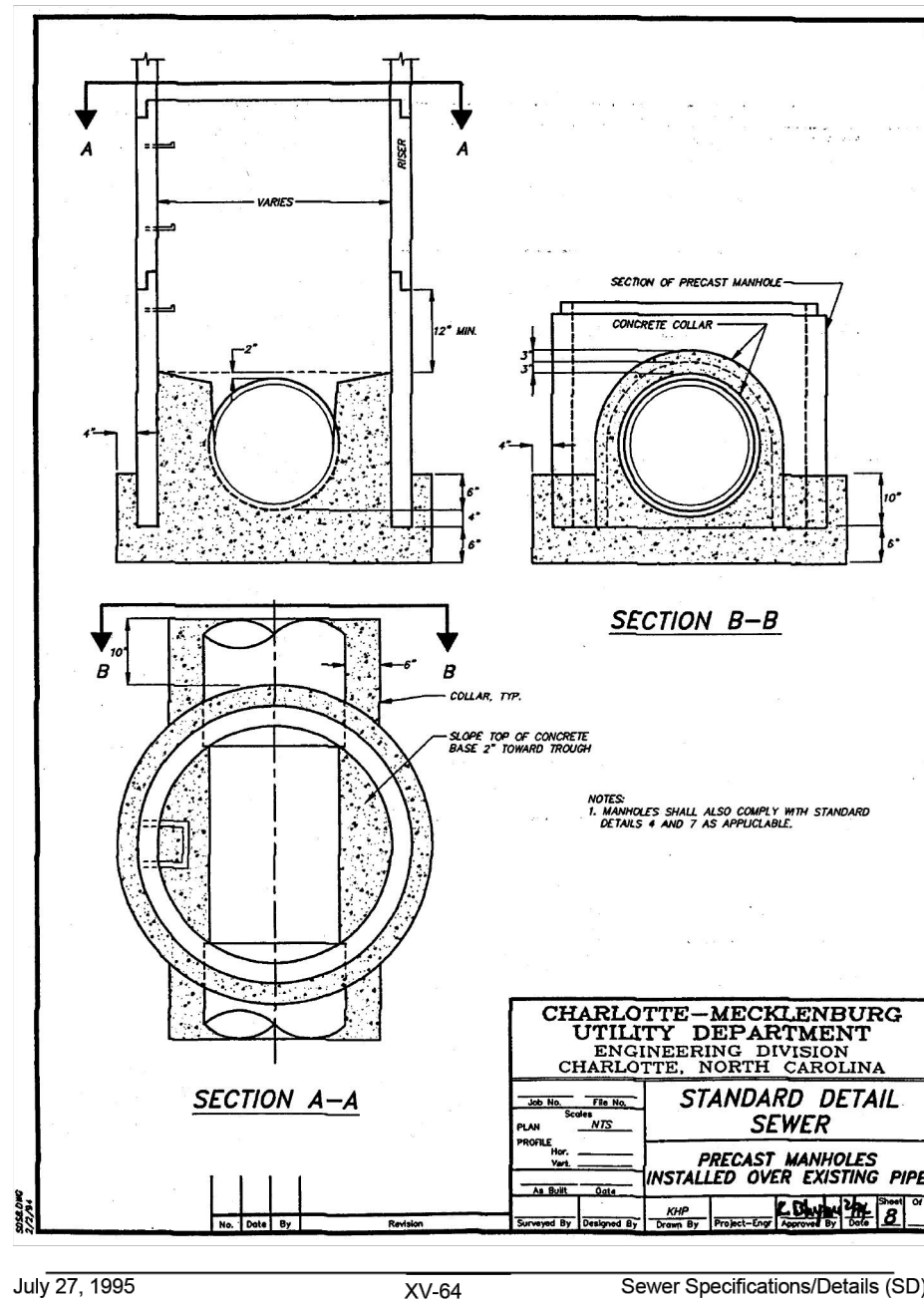
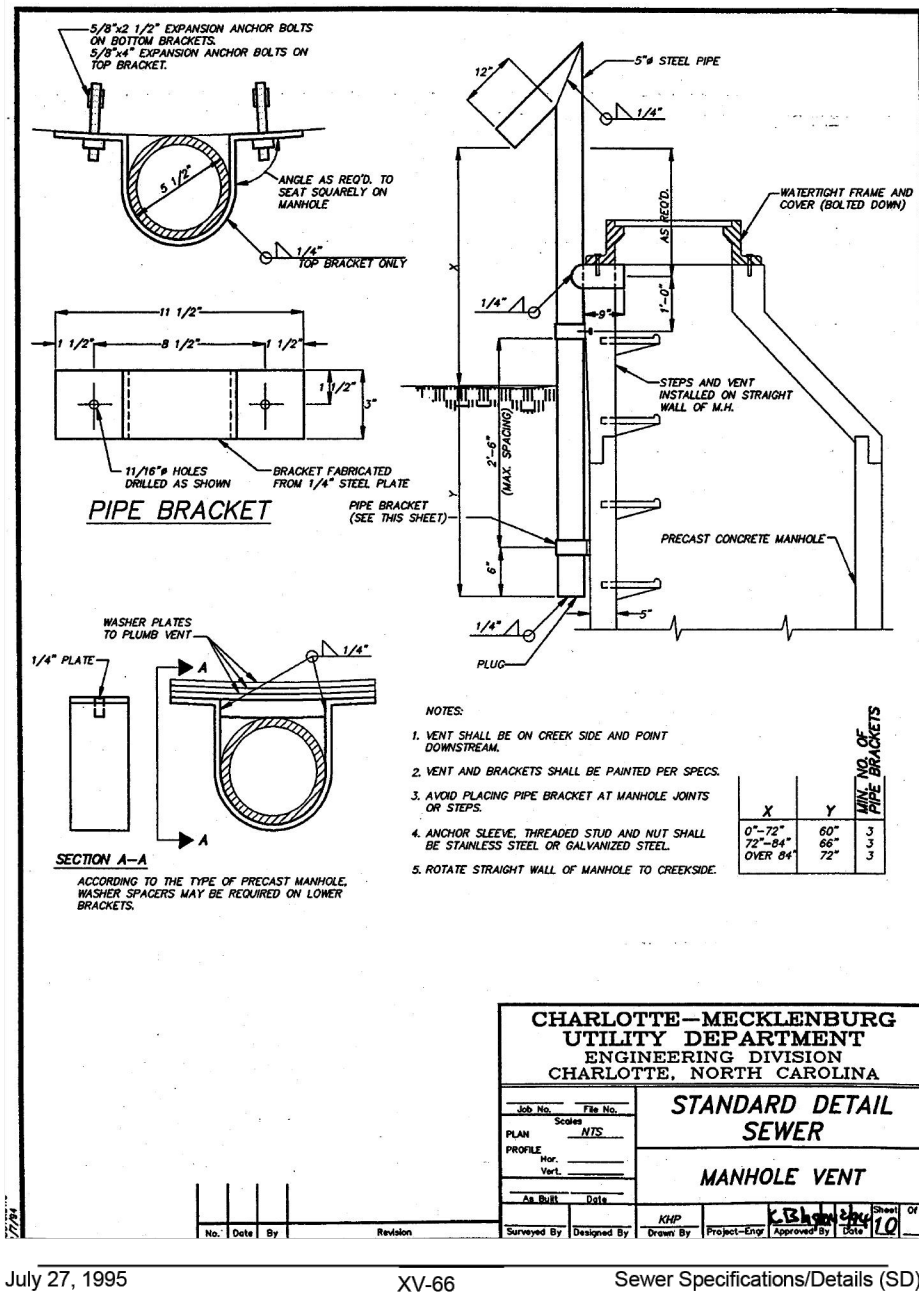
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FILENAME	HUN22003-D1-North Mecklenburg Park.dwg
CHECKED BY	MDD
DRAWN BY	JRD
SCALE	N/A
DATE	07/28/2023

C8.01

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



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Utility Backwater Valve

UBV-2-0716



A Backwater Valve is designed to function as a check valve in a drainage pipe to prevent flowing liquid, such as sewage, from reversing its direction. There are other applications for Backwater Valves, such as multi-level pond balancing for Aquascape applications or for storage tank balancing for industrial and agricultural applications. Backwater Valves should not be confused with Backflow Preventers which are used in potable water supply systems.

Backwater valves are most important if you are on a public sewer system, especially if you are the lowest home on the line where you could have everyone's sewage above you flow into your home if there is a stoppage in the mainline after your connection. Some jurisdictions require Backwater Valves on new construction.

Spears® Utility Backwater Valves feature an easily serviceable and replaceable Flapper Assembly with extendable access using standard piping components. Designed for direct solvent cement connection to ASTM D 2665 DWV drainage pipe or any other IPS size pipe. Spears® IPS x Sewer adapters easily convert valve to ASTM D 3034 SDR 35 Sewer Pipe. Backwater Valves conform to requirements of ASME/ANSI A112.14.1. Utility Backwater Valves are designed to prevent backflow in numerous applications where easy service access for maintenance and cleaning is needed.

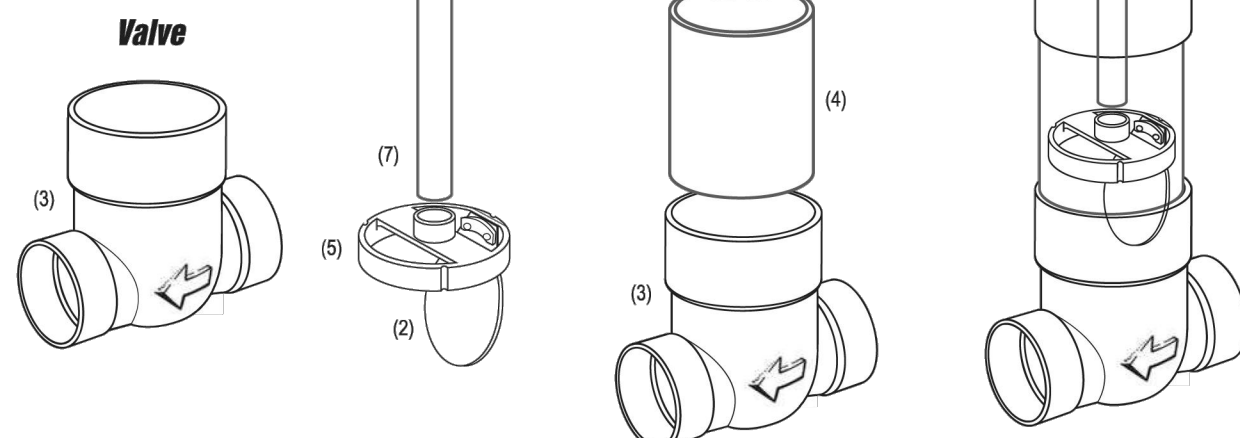
Features

- Replaceable internal flapper assembly
- Extension Kit Adapter components allow easy construction of a valve extension with user supplied pipe cut to desired length
- Direct Valve Connection to ASTM D 2665 PVC DWV or other IPS size pipe. Spears® IPS DWV x Sewer & Drain Adapter Bushings are available for connection to ASTM D 3034 & ASTM D 2729 Sewer pipe
- Standard Valve Adapters Pressure Rated to 50 psi (115 feet of head) @ 73°F (23°C) - Optional 100 psi Adapter (232 feet of head) available
- Conforms to ASME/ANSI A112.14.1 for Backwater Valves

PROGRESSIVE PRODUCTS FROM SPEARS® INNOVATION & TECHNOLOGY
Visit our web site: www.spearsmfg.com

Spears® Utility Backwater Valve has been engineered for easier installation with included Extension Kit Adapter components for use with User-Supplied Schedule 40 Class 125 Extension Riser pipe cut to desired length. Utility Backwater Valve package comes with 50 psi (115 feet of head) rated Extension Adapters. Optional Adapter Kits available in 100 psi (232 feet of head) rating. Can also use User-supplied equivalent adapter components.

- (1) Access Plug
(2) Flapper
(3) Valve Body
(4) User Supplied Riser Extension Pipe (SCH 40 or Class 125 - do not use SCH 80 pipe)
(5) Collar
(6) DWV Cleanout Adapter
(7) User Supplied 1" or 1-1/4" Internal Extension Pipe (for lifting Flapper Assembly to service)



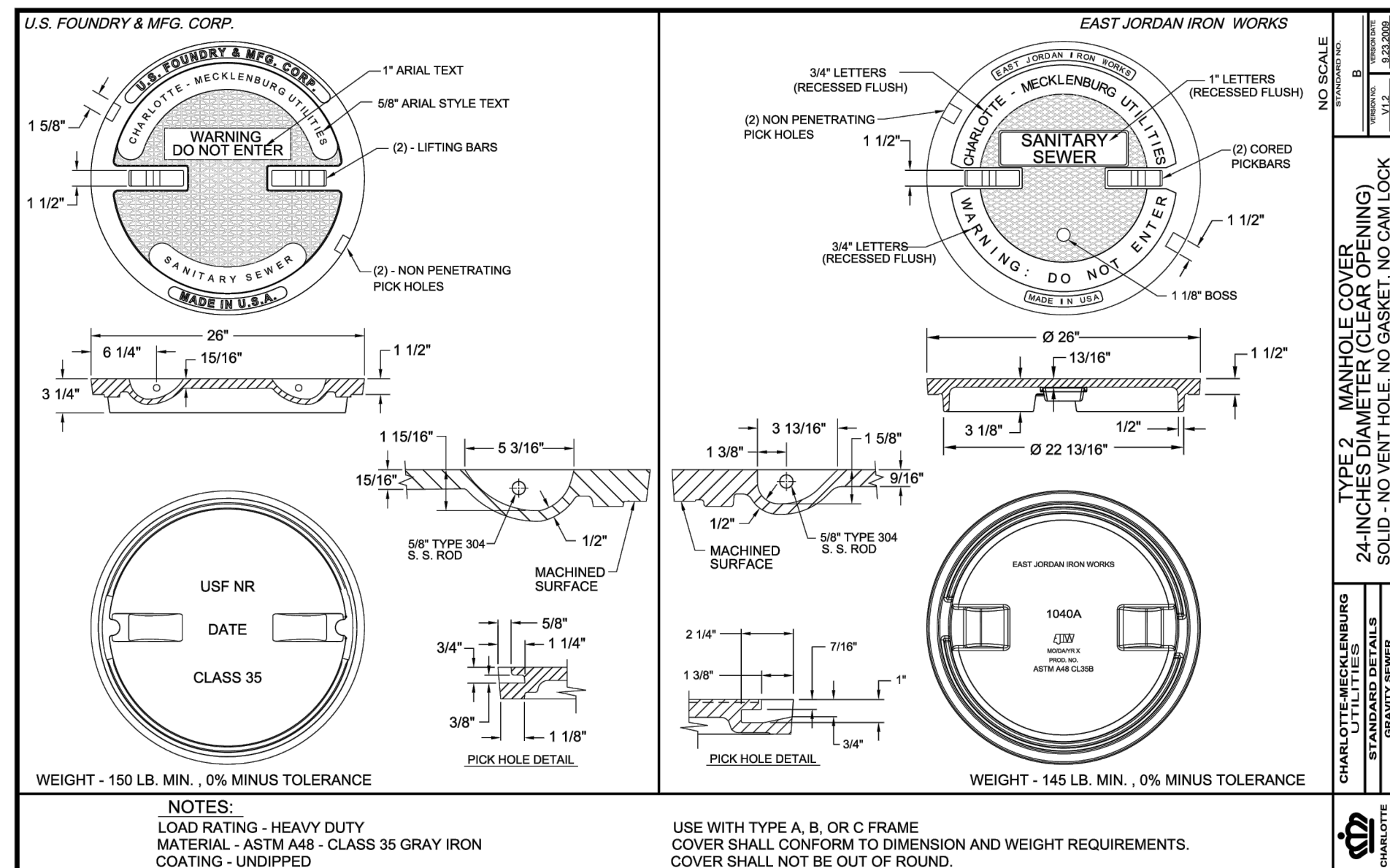
Valve Dimensions

Size	A	B	C	E	F	G	H	I
3"	3-5/8	3-13/16	5-3/16	7/16	7-5/8	10-5/8	7-1/4	9-5/8
4"	3-3/4	3-3/16	5-1/2	3/8	7-9/16	11-1/4	7-1/4	10-1/8
6"	4-15/16	4-15/16	8	1/2	9-15/16	15-15/16	9-3/8	13-9/16



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UBV-2-0716



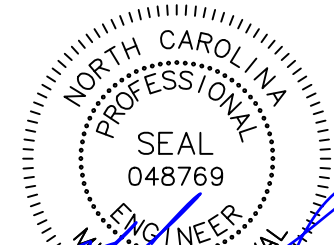
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**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
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HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

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FILENAME HUN22003-01-North Mecklenburg Park.dwg
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SCALE N/A
DATE 07/28/2023

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**SANITARY
SEWER DETAILS
C8.02**

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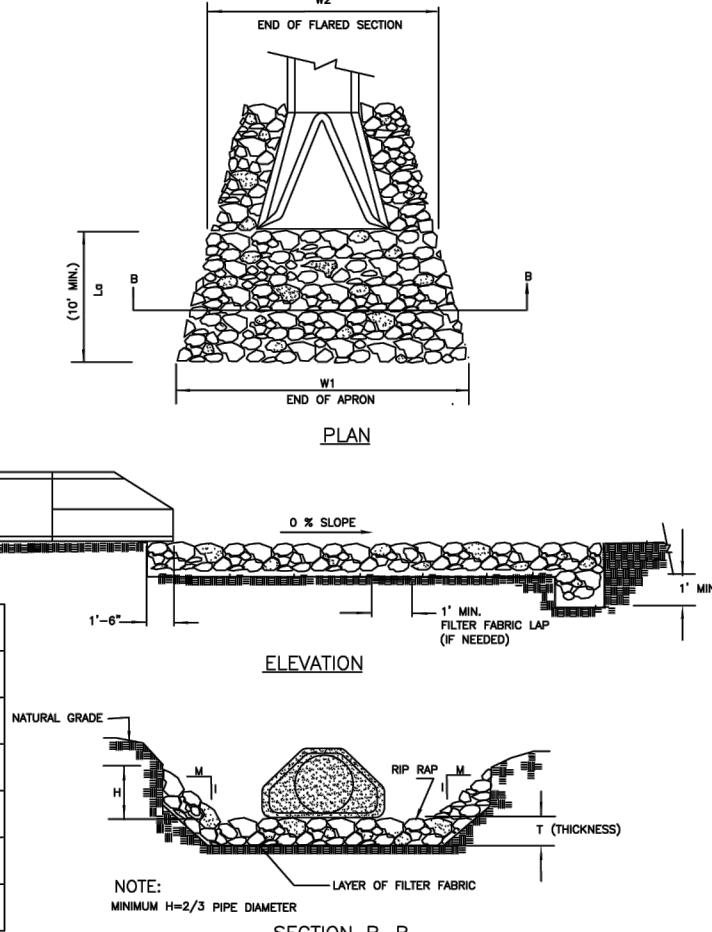
NOTES:

1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER.
2. REFER TO THE CHARLOTTE-MECKLENBURG STORM WATER DESIGN MANUAL FOR RIPRAP APRON DESIGN STANDARDS.
3. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO TIMES THE PIPE DIAMETER OR CULVERT HEIGHT.
4. THERE SHALL BE NO OVERTLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (GROSS) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
5. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
6. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
7. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
8. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.
9. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
10. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.

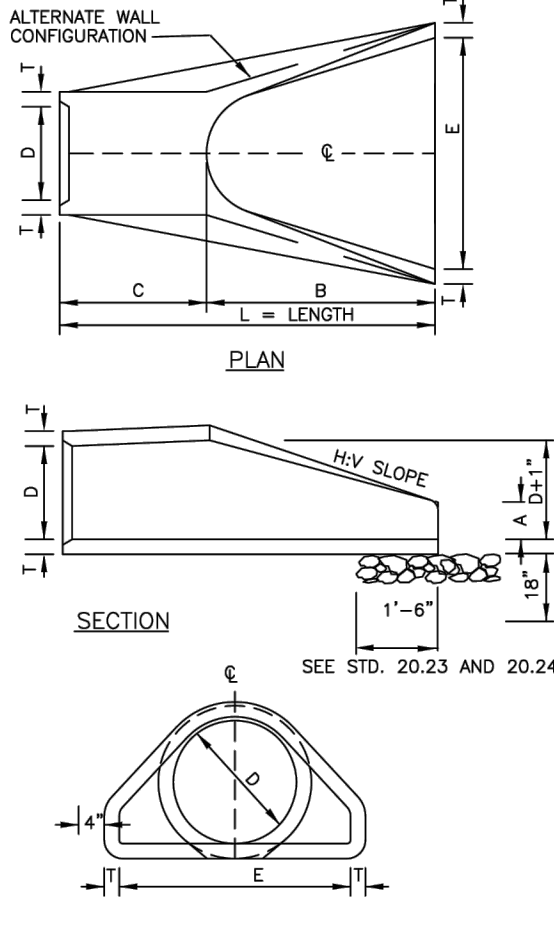
USE USDA NOMOGRAPH FROM NC SEDIMENT AND EROSION CONTROL MANUAL OR CHARLOTTE-MECKLENBURG STORM WATER DESIGN MANUAL FOR DESIGN DATA.

RIPRAP SUMMARY CHART							
OUTLET	Lo	W1	W2	H	d50	dmax	*T
FES-100	10'	5'	5'	5'	3"	4.5"	6.75'

* d50 (mm) fig. 8.08 also "NC SEDIMENT AND EROSION CONTROL MANUAL"
dmax = 1.5 x d50
T = 12.5 x dmax



NOT TO SCALE



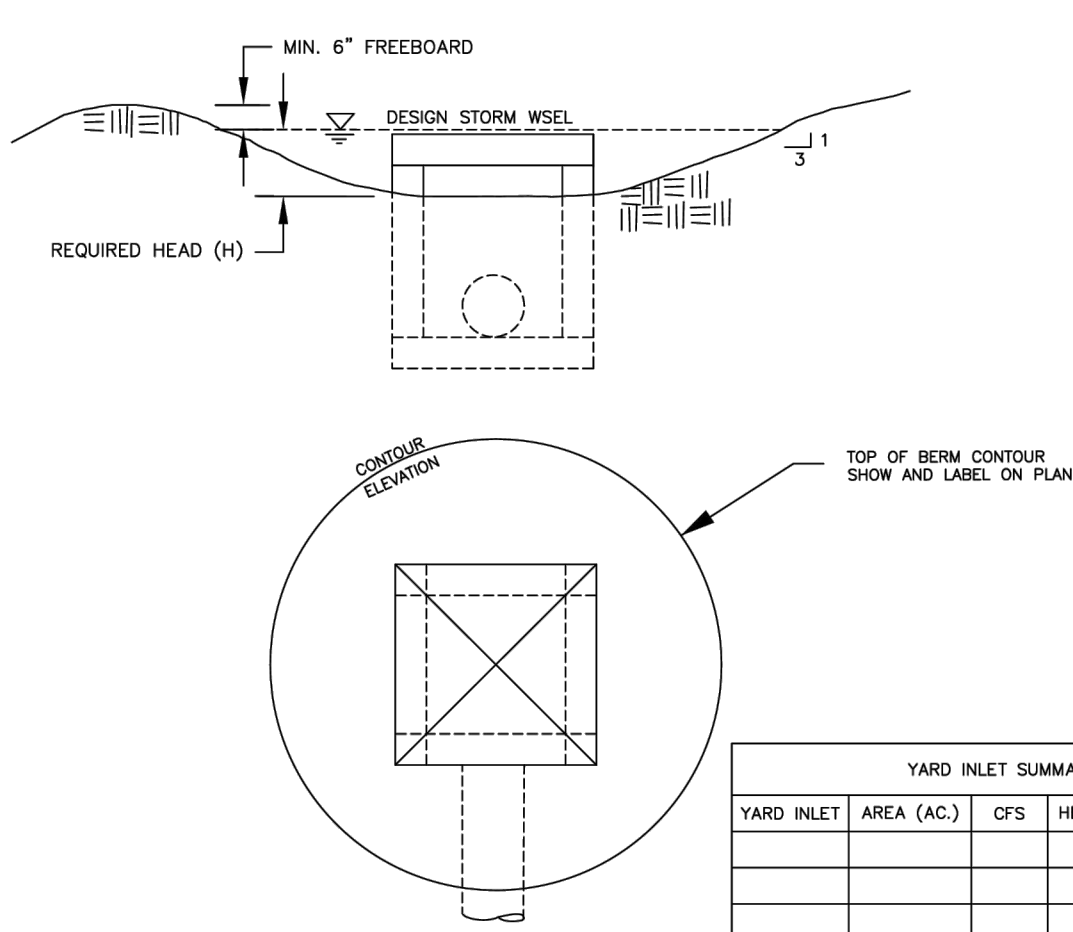
END VIEW

NOT TO SCALE

TABLE OF DIMENSIONS									
D	T	A	B	C	E	L	HIV	WT.	
12"	2'-1/4"	4"	2'-0"	4'-11"	2'-0"	8'-11"	3:1	750	
18"	2'-1/4"	6"	2'-3"	3'-10"	2'-0"	8'-11"	3:1	750	
18"	2'-1/2"	6"	2'-3"	3'-10"	3'-0"	8'-11"	3:1	1190	
24"	3'	10"	3'-8"	2'-8"	4'-0"	8'-2"	3:1	1770	
30"	3'-1/2"	1'-0"	4'-8"	1'-8"	5'-0"	8'-2"	3:1	2380	
30"	4'	1'-3"	5'-3"	2'-11"	6'-0"	8'-2"	3:1	5300	
42"	4'-1/2"	1'-8"	5'-3"	2'-11"	6'-8"	8'-2"	3:1	5920	
48"	5'	2'-0"	6'-0"	2'-2"	7'-0"	8'-2"	3:1	6810	
54"	5'-1/2"	2'-3"	5'-8"	2'-10"	7'-8"	8'-4"	3:1	2470	
60"	6'	2'-6"	5'-0"	3'-3"	8'-0"	8'-3"	3:1	11180	
60"	6'-1/2"	3'-0"	6'-0"	2'-3"	8'-0"	8'-3"	3:1	12530	
72"	7'	3'-0"	6'-8"	1'-8"	9'-0"	8'-3"	3:1	13980	

GENERAL NOTES:

1. SEE FORMER NCDOT STANDARD 310.01 FOR DETAILS.
2. REINFORCEMENT SHALL CONFORM TO THE REQUIREMENTS OF REINFORCED CONCRETE PIPE OF LIKE DIAMETER PER AASHTO M170, TABLE 2, WALL B.
3. ALL CONCRETE TO BE 4000 P.S.I. COMPRESSIVE STRENGTH.
4. PROVIDE TONGUE OR SPIGOT JOINT AT INLET END SECTION.
5. PROVIDE GROOVE OR BELL JOINT AT OUTLET END SECTION.
6. THE DIMENSIONS FOR END SECTIONS SHALL SUBSTANTIALLY AGREE WITH THE TABLE. MINOR VARIATIONS WILL BE PERMITTED BASED ON THE MANUFACTURER'S STANDARD FORMS AND TEMPLATES.
7. NOT TO BE USED IN NCDOT MAINTAINED RIGHT OF WAY.



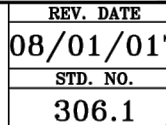
YARD INLET SUMMARY CHART				
YARD INLET	AREA (AC.)	CFS	HEAD H (FT.)	COMMENT

NOT TO SCALE



STANDARD
DRAWING

RIPRAP APRON AT PIPE OUTFALLS
OTHER THAN SWIM



STANDARD
DRAWING

FLARED END SECTION
12" THRU 72" PIPE



STANDARD
DRAWING

GRADING AT DROP INLET



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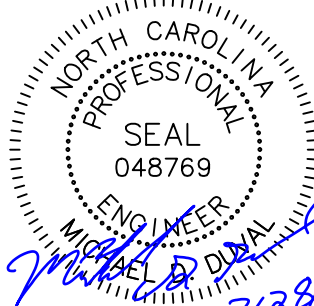
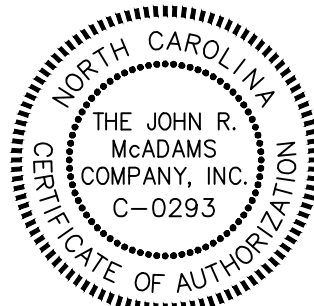
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REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-D1-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE N/A
DATE 07/28/2023

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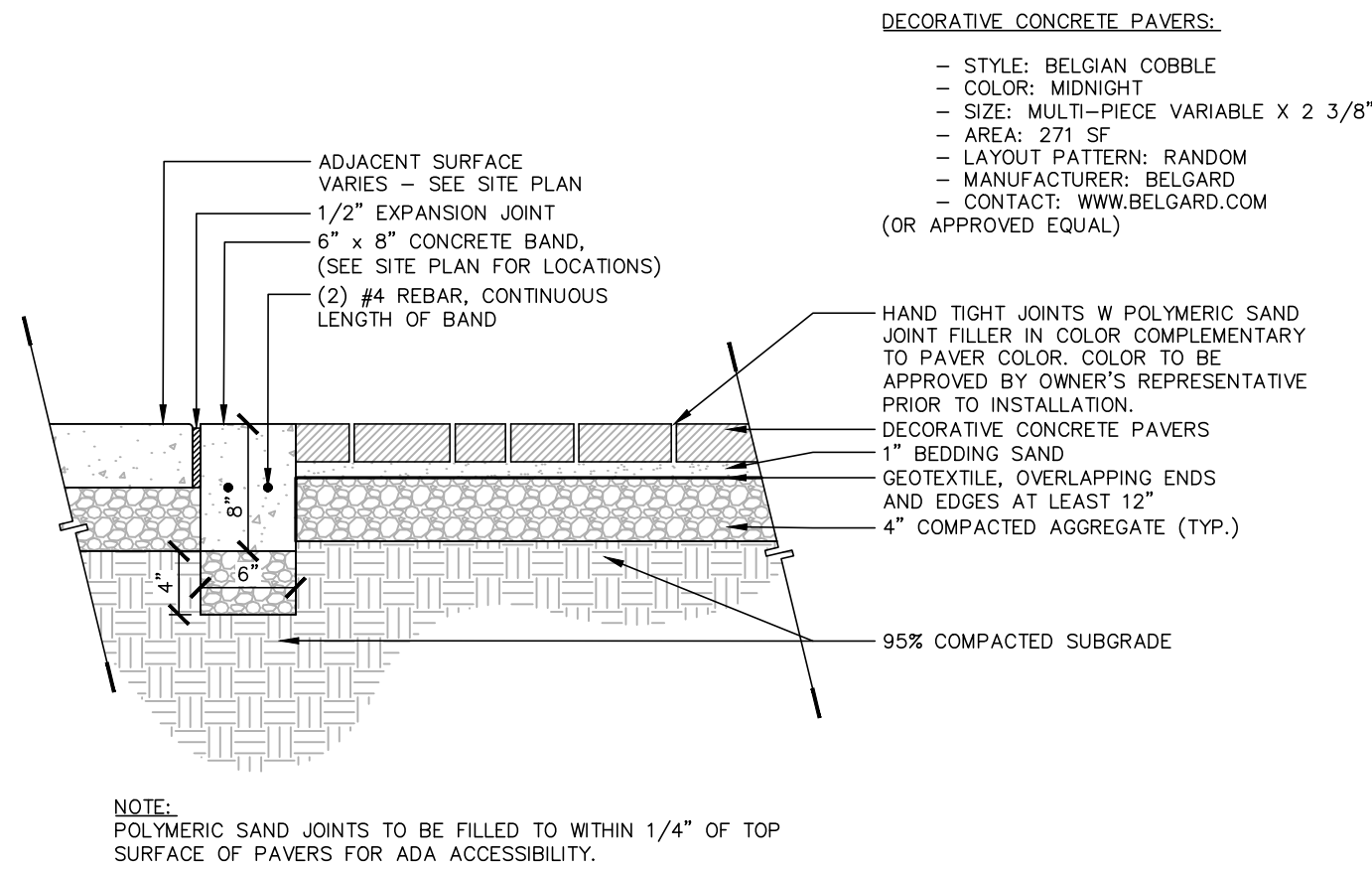
STORM DETAILS

C8.03

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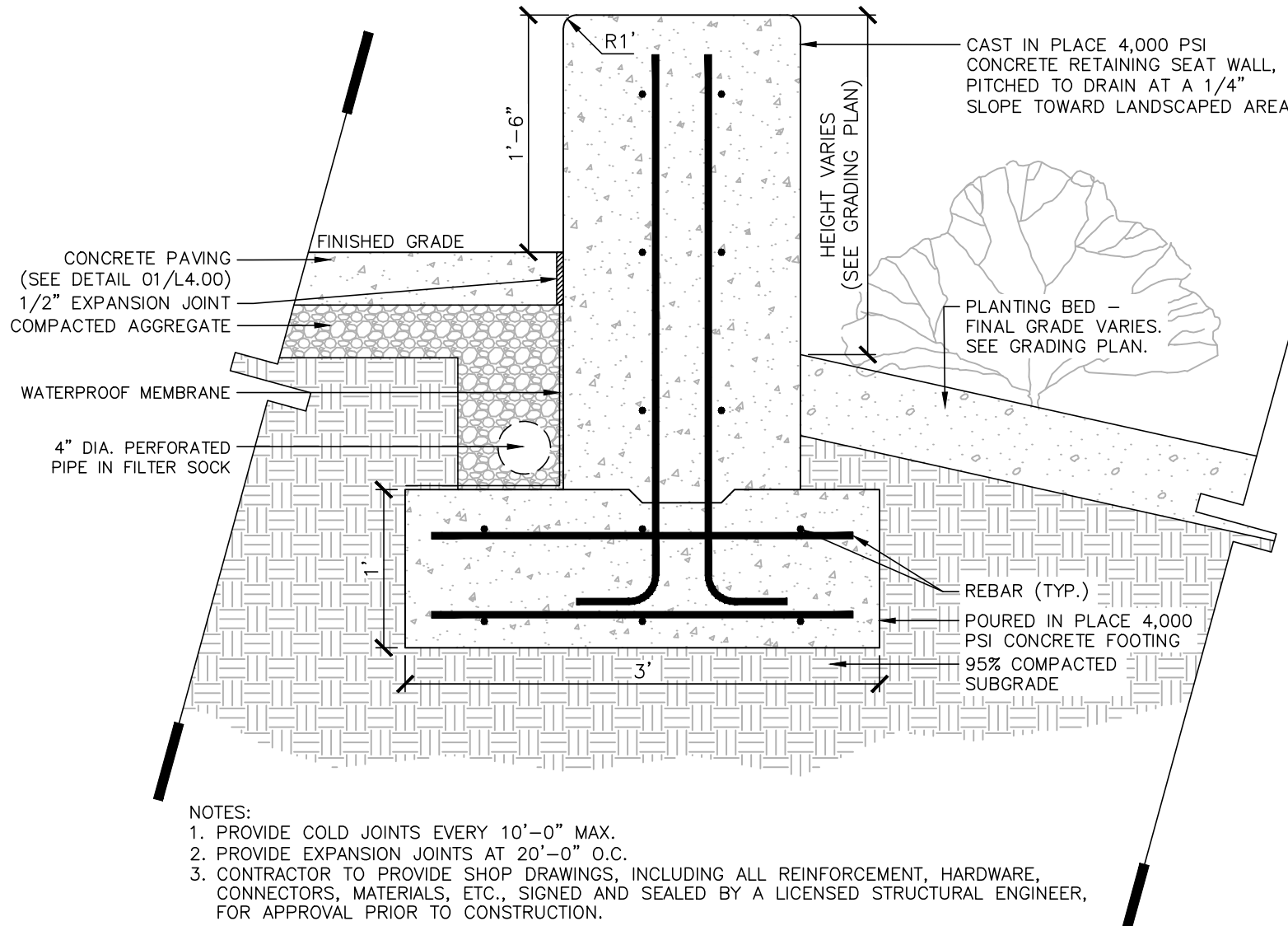
01 DECORATIVE CONCRETE PAVERS

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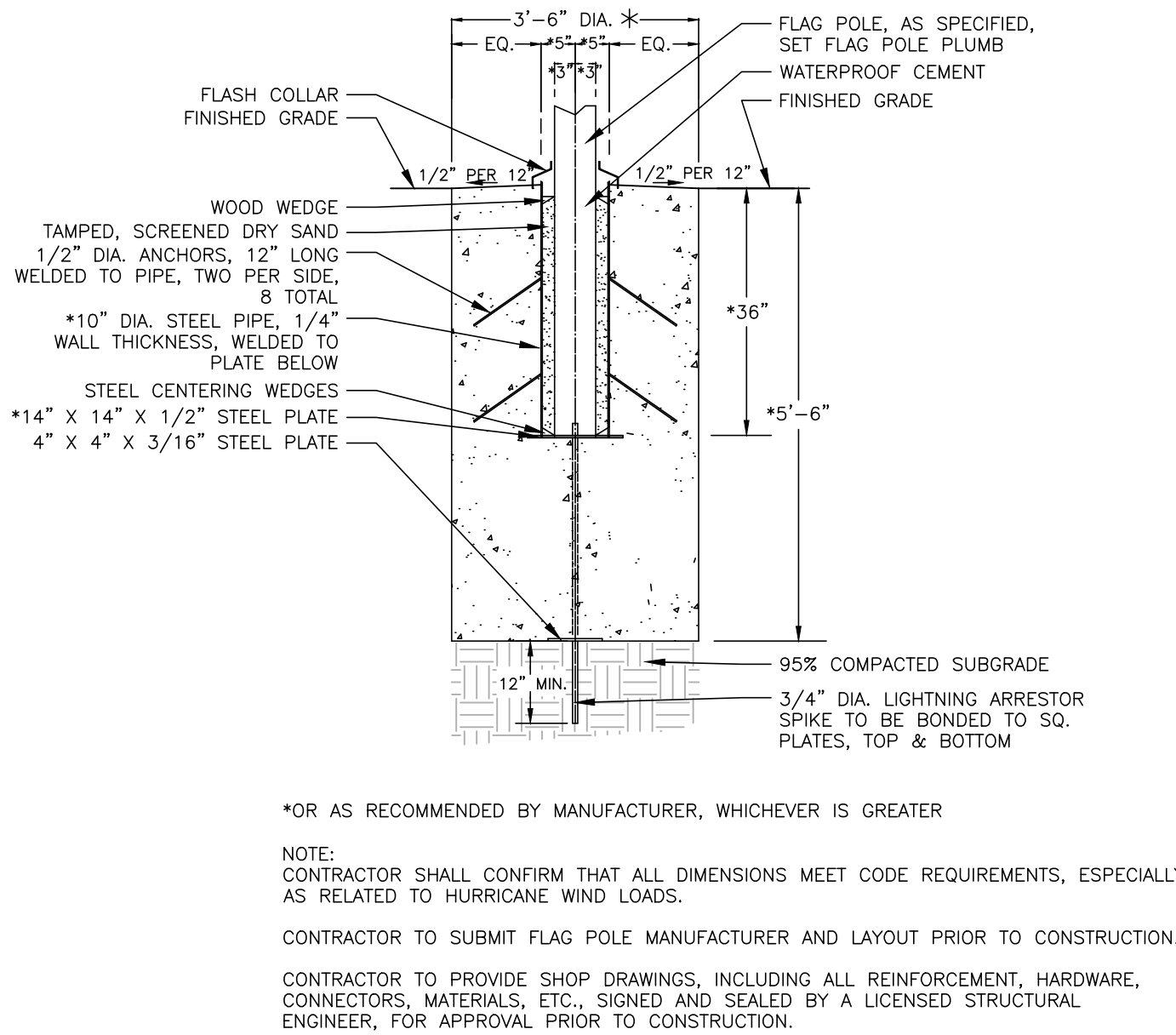
02 RETAINING SEAT WALL

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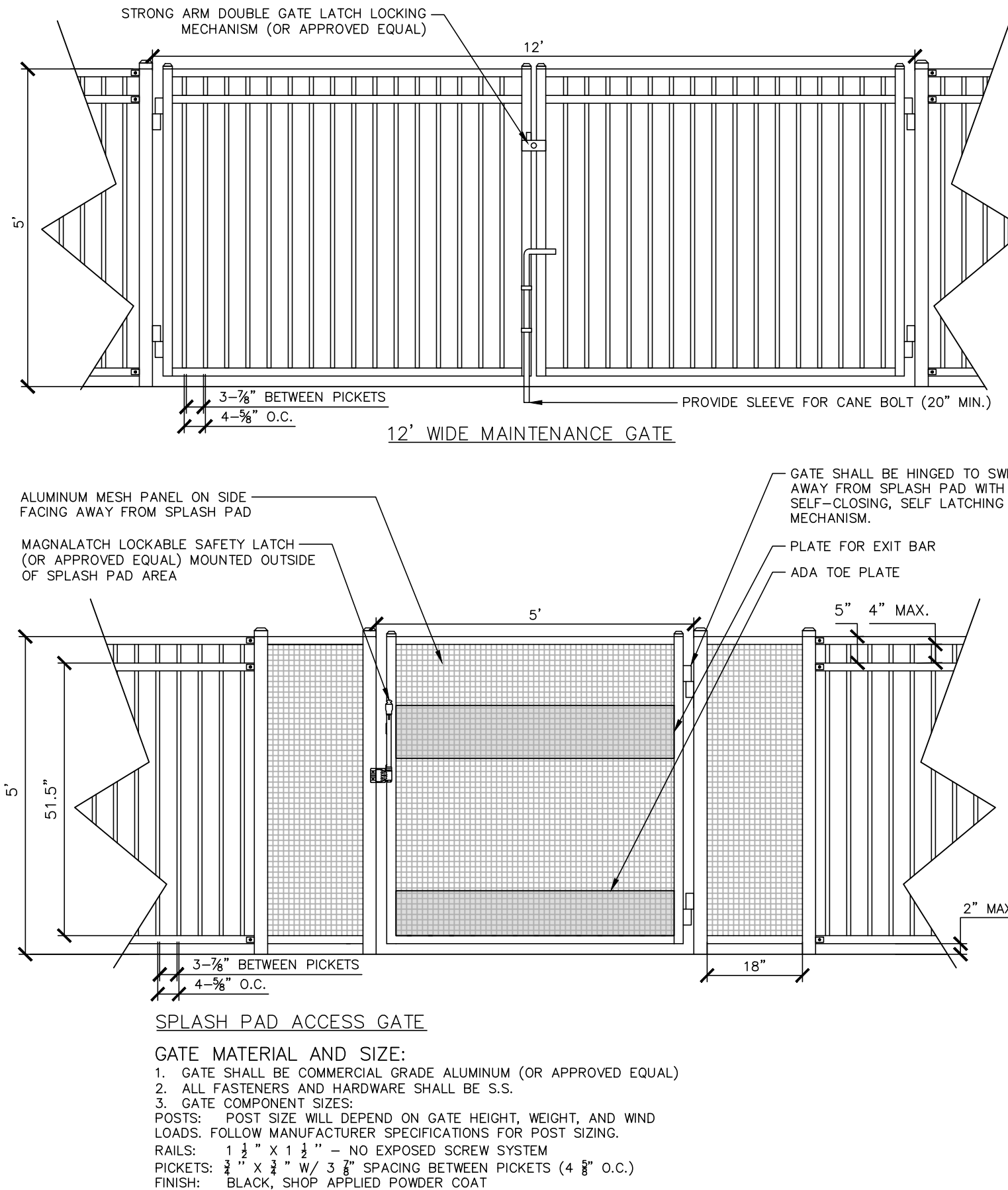
03 FLAG POLE FOUNDATION

SCALE: N.T.S.



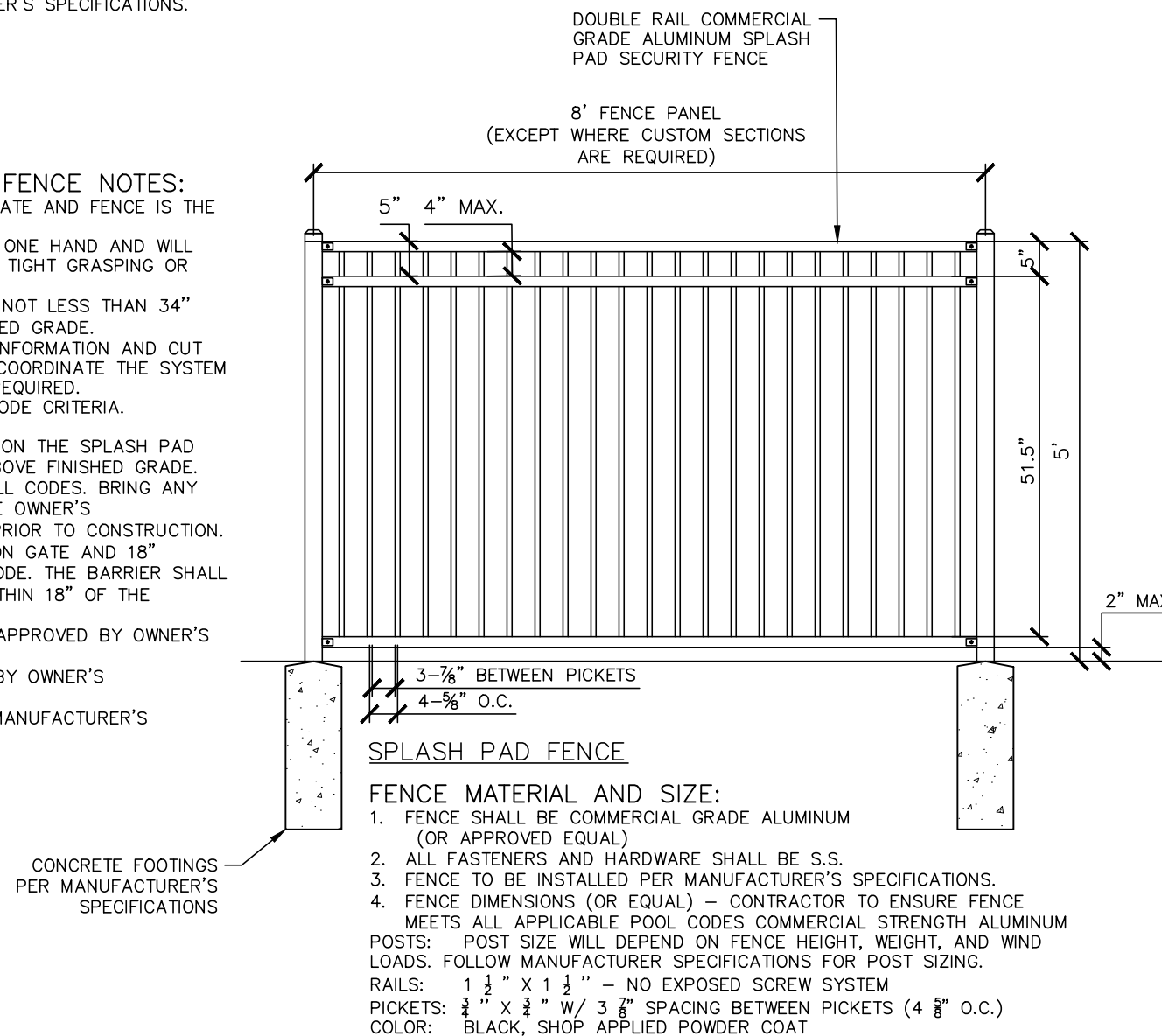
04 SPLASH PAD FENCE AND GATES

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



- MAINTENANCE GATE MATERIAL AND SIZE:
1. GATE SHALL BE COMMERCIAL GRADE ALUMINUM (OR APPROVED EQUAL)
 2. ALL FASTENERS AND HARDWARE SHALL BE S.S.
 3. GATE COMPONENT SIZES:
- POSTS: POST SIZE WILL DEPEND ON GATE HEIGHT, WEIGHT, AND WIND LOADS. FOLLOW MANUFACTURER SPECIFICATIONS FOR POST SIZING.
- RAILS: 1 1/2" x 1 1/2" - NO EXPOSED SCREW SYSTEM
- PICKETS: 3/4" x 3/4" W/ 3 7/8" SPACING BETWEEN PICKETS (4 3/8" O.C.)
- FINISH: BLACK, SHOP APPLIED POWDER COAT
- MAINTENANCE GATE NOTES:
1. THE BASIS OF DESIGN FOR THE MAINTENANCE GATE IS THE ECHOLON MAJESTIC LINE BY AMERISTAR.
 2. GATE HARDWARE WILL BE OPERABLE WITH ONE HAND AND WILL NOT REQUIRE >SLBS OF FORCE, PINCHING, TIGHT GRASPING OR TWISTING OF THE WRIST TO OPERATE.
 3. GATE ENTRY CONTROLS WILL BE LOCATED NOT LESS THAN 34" MINIMUM AND 48" MAXIMUM ABOVE FINISHED GRADE.
 4. CONTRACTOR TO SUBMIT MANUFACTURER INFORMATION AND CUT SHEETS FOR LATCH PRIOR TO ORDERING. COORDINATE THE SYSTEM WITH OTHER SITE ACCESS CONTROLS AS REQUIRED.
 5. CONFIRM GATE MEETS LOCAL CODE CRITERIA.
 6. GATE SHALL BE FLUSH.
 7. GATE SHALL MEET ADA & ALL CODES. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
 8. GATE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.

- SPLASH PAD ACCESS GATE AND FENCE NOTES:
1. THE BASIS OF DESIGN FOR THE ACCESS GATE AND FENCE IS THE ECHOLON MAJESTIC LINE BY AMERISTAR.
 2. GATE HARDWARE WILL BE OPERABLE WITH ONE HAND AND WILL NOT REQUIRE >SLBS OF FORCE, PINCHING, TIGHT GRASPING OR TWISTING OF THE WRIST TO OPERATE.
 3. GATE ENTRY CONTROLS WILL BE LOCATED NOT LESS THAN 34" MINIMUM AND 48" MAXIMUM ABOVE FINISHED GRADE.
 4. CONTRACTOR TO SUBMIT MANUFACTURER INFORMATION AND CUT SHEETS FOR LATCH PRIOR TO ORDERING. COORDINATE THE SYSTEM WITH OTHER SITE ACCESS CONTROLS AS REQUIRED.
 5. CONFIRM GATE AND FENCE MEET LOCAL CODE CRITERIA.
 6. GATE AND FENCE TO BE FLUSH.
 7. SELF-CLOSING LATCH IS TO BE MOUNTED ON THE SPLASH PAD SIDE OF THE GATE AT A MAXIMUM 48" ABOVE FINISHED GRADE.
 8. SPLASH PAD GATE SHALL MEET ADA & ALL CODES. BRING ANY DISCREPANCIES TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE/LANDSCAPE ARCHITECT PRIOR TO CONSTRUCTION.
 9. ALUMINUM MESH PANEL SHALL BE USED ON GATE AND 18" MINIMUM ON EITHER SIDE OF GATE PER CODE. THE BARRIER SHALL HAVE NO OPENINGS GREATER THAN 32" WITHIN 18" OF THE RELEASE MECHANISM.
 10. GATE AND FENCE MANUFACTURER TO BE APPROVED BY OWNER'S REP PRIOR TO INSTALLATION.
 11. MESH PANEL PATTERN TO BE APPROVED BY OWNER'S REPRESENTATIVE PRIOR TO INSTALLATION.
 12. GATE AND FENCE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS.



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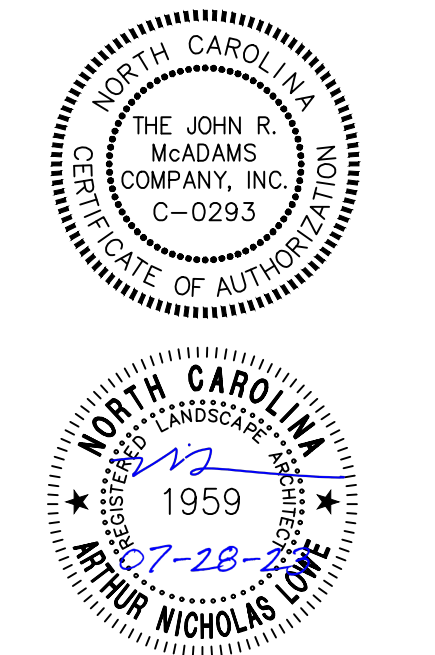
www.mcadamsco.com

CLIENT

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PHONE: 704. 875. 6541



NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS	
NO.	DATE
PLAN INFORMATION	
PROJECT NO.	HUN-22003
FILENAME	HUN22003-HD1-North Mecklenburg Park.dwg
CHECKED BY	ANL
DRAWN BY	KML
SCALE	AS SHOWN
DATE	07/28/2023
SHEET	

HARDSCAPE
DETAILS
L4.00

SEE SHEET C0.00 FOR HARDSCAPE DETAIL NOTES.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



McAdams

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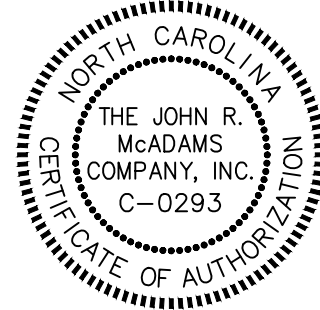
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REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003

FILENAME HUN22003-LS2-North Mecklenburg Park.dwg

CHECKED BY ANL

DRAWN BY KML

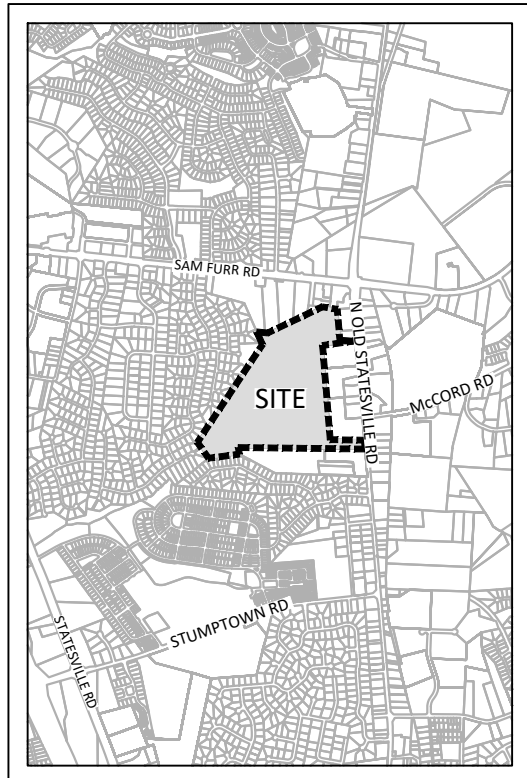
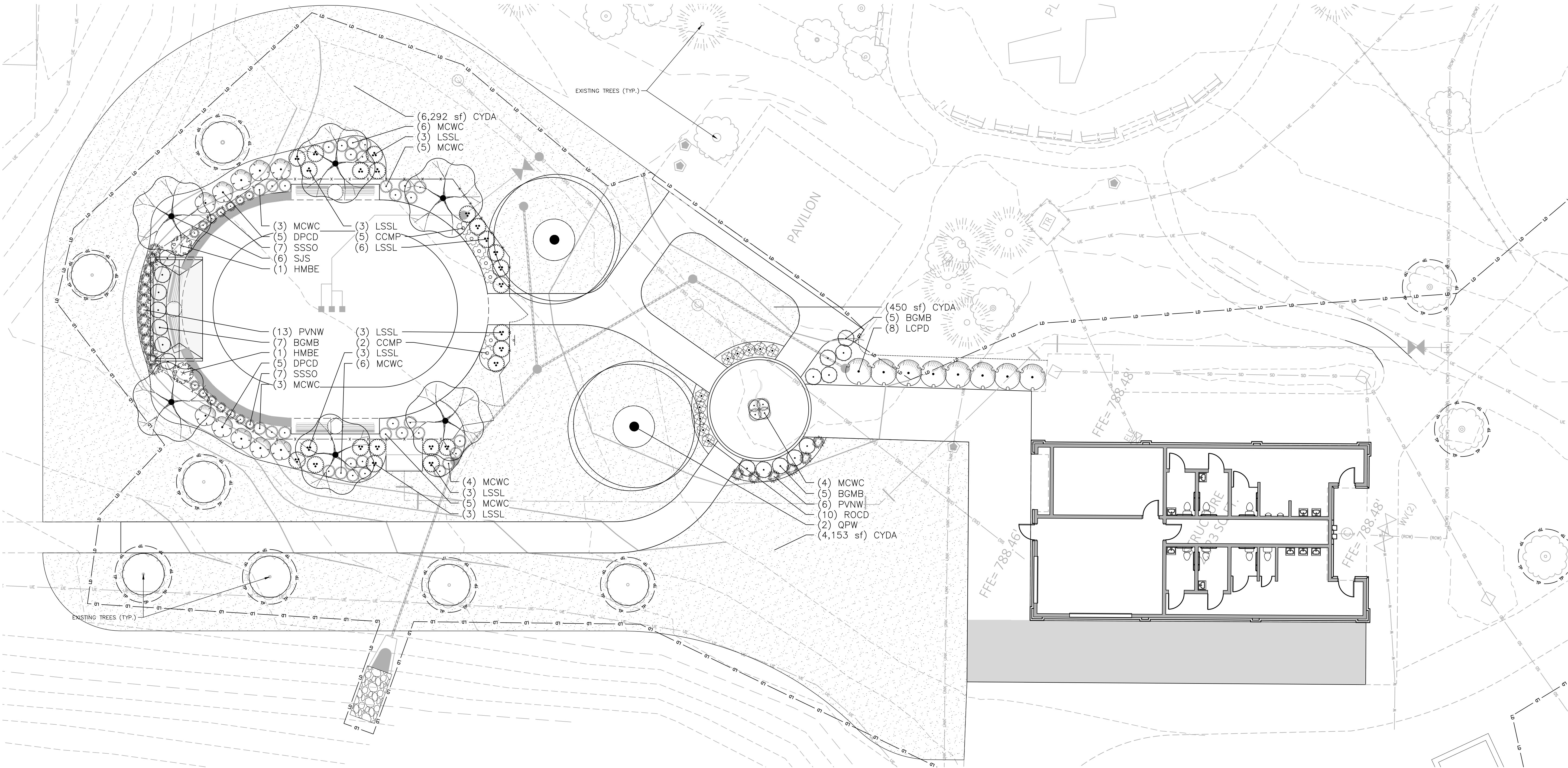
SCALE 1"=10'

DATE 07/28/2023

SHEET

LANDSCAPE PLAN

L5.00



VICINITY MAP
N.T.S.

NOTES:

- INSTALLATION GUARANTEE REQUIRED.
- A FINAL CERTIFICATE OF OCCUPANCY MAY BE ISSUED PRIOR TO THE INSTALLATION OF TREES AND SHRUBS. EXCLUDING YARD TREES, DURING THE NON-PLANTING SEASON IF A CASH BOND, SURETY BOND OR LETTER OF CREDIT IS ISSUED FOR 120% OF THE COST OF MATERIALS AND INSTALLATION. PLANTING SHALL BE COMPLETED DURING THE NEXT PLANTING SEASON.
 - THE PLANTING SEASON SHALL RUN FROM OCTOBER 15 TO MARCH 15, EXCEPT FOR EXTREME WEATHER CONDITIONS AS DETERMINED BY A FINAL CERTIFICATE OF OCCUPANCY SHALL NOT BE GIVEN DURING THE PLANTING SEASON UNLESS ALL OF THE LANDSCAPING IS COMPLETELY INSTALLED ACCORDING TO THIS ARTICLE

MAINTENANCE SURETY REQUIRED.

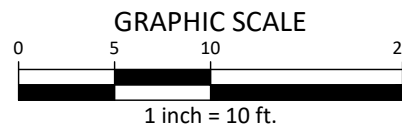
- DEVELOPERS SHALL ENTER INTO A MAINTENANCE SURETY AGREEMENT WITH THE TOWN OF HUNTERSVILLE GUARANTEEING THE VIABILITY OF STREET TREES AND TREES AND SHRUBS PLANTED IN BUFFER YARDS FOR A PERIOD OF 1 YEAR FOLLOWING PLANTING. THE AMOUNT OF THE SURETY SHALL BE EQUAL TO 50% OF THE VALUE OF THE NEW TREES OR LANDSCAPE MATERIAL AND THEIR INSTALLATION. THE MAINTENANCE SURETY SHALL BE PROVIDED WHEN ALL OF THE REQUIRED TREES AND SHRUBS HAVE BEEN PLANTED.

PLANT SCHEDULE SPLASH PAD

CANOPY TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT	CONT
	QPW	2	Willow Oak	Quercus phellos	2.5" min	8' min	B&B
UNDERSTORY TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT	CONT
	SJS	6	Japanese Snowbell	Styrax japonicus	2" min	8' min	
SHRUBS	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT	SPREAD
	BGMB	17	Green Mountain Boxwood	Buxus x 'Green Mountain'	3 gal	24" min	18" min
	CCMP	7	Petit Bleu™ Bluebeard	Caryopteris x clandonensis 'Miniblu'	3 gal	12" min	12" min
	DPCD	10	First Editions® Coppertone™ Distylium	Distylium x 'PIIDIST-III'	3 gal	24" min	18" min
	HMBE	2	Endless Summer® The Original Hydrangea	Hydrangea macrophylla 'Bailmer'	3 gal	24" min	18" min
	LSSL	24	Sunshine Chinese Privet	Ligustrum sinense 'Sunshine'	3 gal	24" min	18" min
	LCPD	8	Purple Diamond® Fringe Flower	Loropetalum chinense rubrum 'Shang-hi'	7 gal	36" min.	24" min.
	ROCD	10	Coral Drift Rose	Rosa x 'Coral Drift'	3 gal	12" min	12" min
GRASSES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT	SPREAD
	MCWC	36	White Cloud Muhly Grass	Muhlenbergia capillaris 'White Cloud'	1 gal	12" min	12" min
	PVNW	19	Northwind Switch Grass	Panicum virgatum 'Northwind'	1 gal	12" min	12" min
	SSSO	14	Standing Ovation Little Bluestem	Schizachyrium scoparium 'Standing Ovation'	1 gal	12" min	12" min
GROUND COVERS	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT	SPREAD
	CYDA	10,895 sf	Bermuda 419	Cynodon dactylon	Sod		

SITE LEGEND

	SIGNAGE
TP TP TP	TREE PROTECTION FENCE
LD LD	LIMITS OF DISTURBANCE
x x x x	5' HEIGHT FENCE



PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



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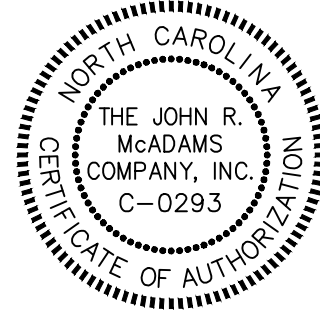
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NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

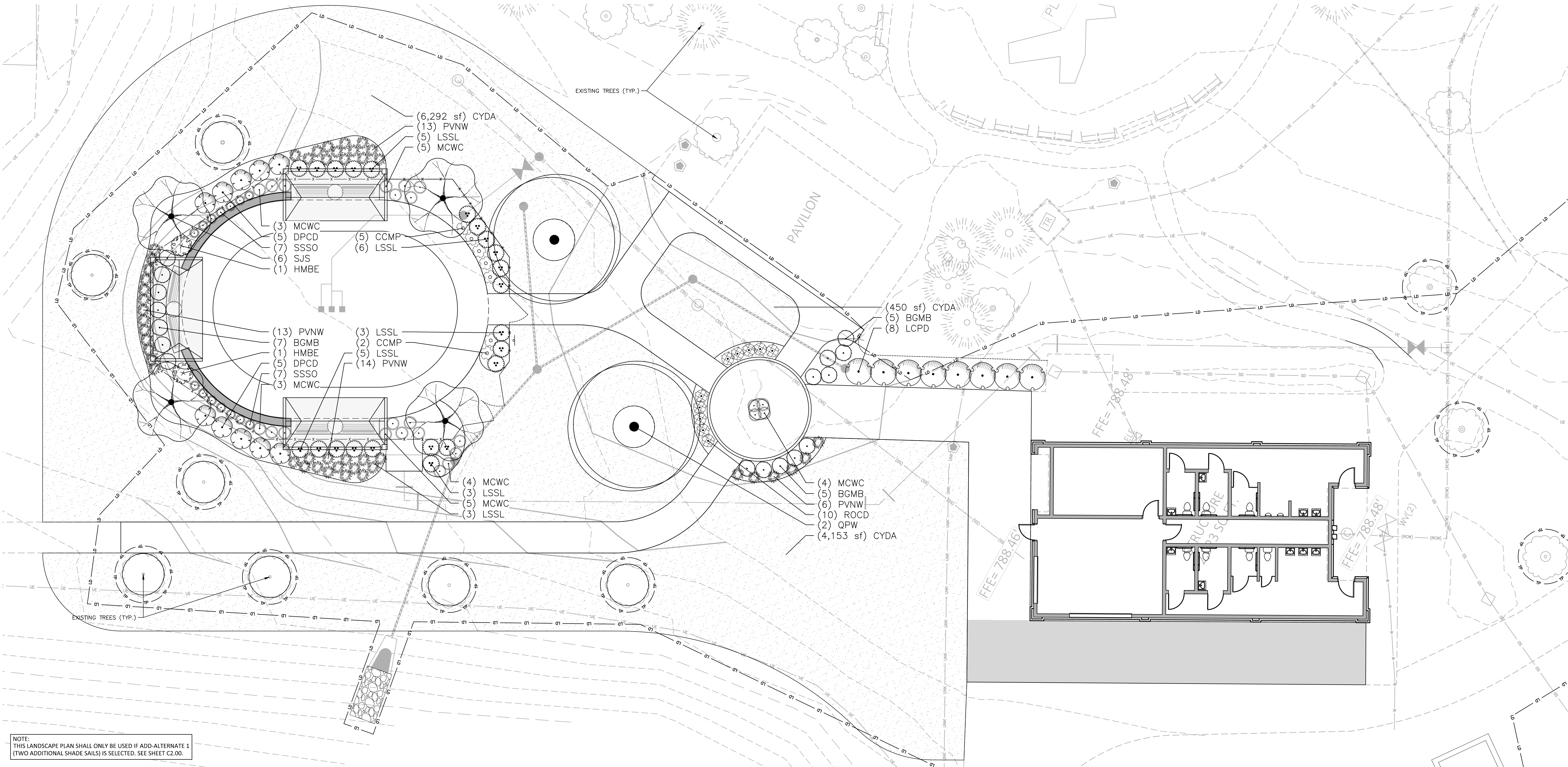
PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-L52-ADDALT-North Mecklenburg Park.dwg
CHECKED BY ANL
DRAWN BY KML
SCALE 1"=10'
DATE 07/28/2023

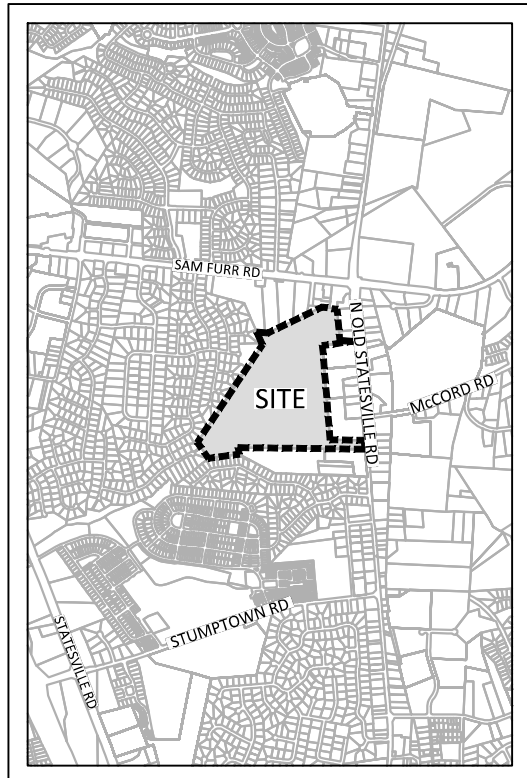
SHEET

ADD-ALTERNATE
LANDSCAPE PLAN

L5.01



NOTE:
THIS LANDSCAPE PLAN SHALL ONLY BE USED IF ADD-ALTERNATE 1
(TWO ADDITIONAL SHADE SAILS) IS SELECTED. SEE SHEET C2.00.



VICINITY MAP
N.T.S.

SEE SHEET C0.00 FOR LANDSCAPE NOTES.

NOTE:
ONE (5" CALIPER) EXISTING WILLOW OAK IS TO BE REMOVED.
TWO (2.5" CALIPER) WILLOW OAK TREES ARE PROPOSED TO
REPLACE THE REMOVED TREE.

NOTES:

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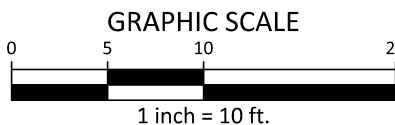
PLANT SCHEDULE SPLASH PAD – ADD ALTERNATE

CANOPY TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT	CONT
	QPW	2	Willow Oak	Quercus phellos	2.5" min	8' min	B&B
UNDERSTORY TREES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CAL	HEIGHT	CONT
	SJS	4	Japanese Snowbell	Styrax japonicus	2" min	8' min	
SHRUBS	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT	SPREAD
	BGMB	17	Green Mountain Boxwood	Buxus x 'Green Mountain'	3 gal	24" min	18" min
	CCMP	7	Petit Bleu™ Bluebeard	Caryopteris x clandonensis 'Minibieu'	3 gal	12" min	12" min
	DPCD	10	First Editions® Coppertone™ Distylium	Distylium x 'PIIDIST—III'	3 gal	24" min	18" min
	HMBE	2	Endless Summer® The Original Hydrangea	Hydrangea macrophylla 'Bailmer'	3 gal	24" min	18" min
	LSSL	22	Sunshine Chinese Privet	Ligustrum sinense 'Sunshine'	3 gal	24" min	18" min
	LCPD	8	Purple Diamond® Fringe Flower	Loropetalum chinense rubrum 'Shang—hi'	7 gal	36" min.	24" min.
	ROCD	10	Coral Drift Rose	Rosa x 'Coral Drift'	3 gal	12" min	12" min
GRASSES	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT	SPREAD
	MCWC	24	White Cloud Muhly Grass	Muhlenbergia capillaris 'White Cloud'	1 gal	12" min	12" min
	PVNW	46	Northwind Switch Grass	Panicum virgatum 'Northwind'	1 gal	12" min	12" min
	SSSO	14	Standing Ovation Little Bluestem	Schizachyrium scoparium 'Standing Ovation'	1 gal	12" min	12" min
GROUND COVERS	CODE	QTY	COMMON NAME	BOTANICAL NAME	CONT	HEIGHT	SPREAD
	CYDA	10,895 sf	Bermuda 419	Cynodon dactylon	Sod		

SITE LEGEND

	TP	TP	TP
	LD	LD	LD
	x	x	x
	x	x	x

SIGNAGE
TREE PROTECTION FENCE
LIMITS OF DISTURBANCE
5' HEIGHT FENCE

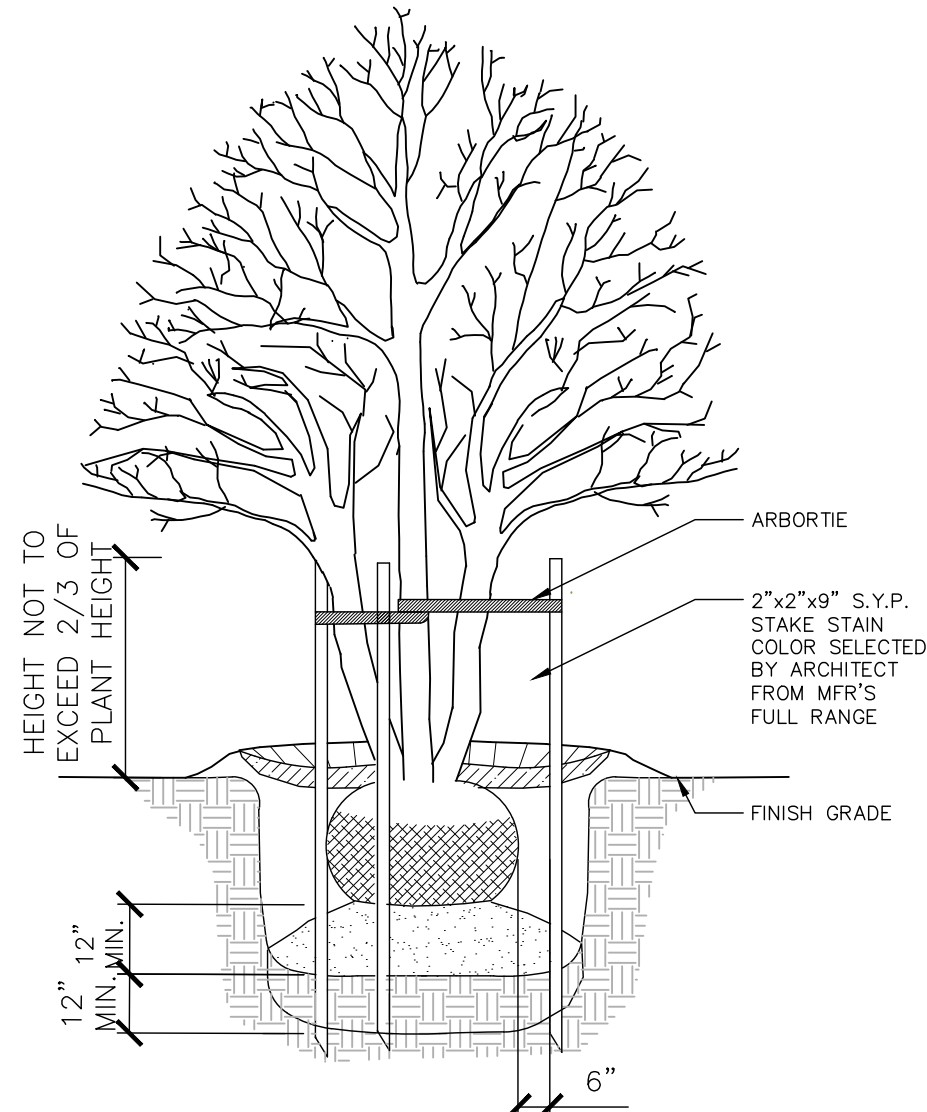
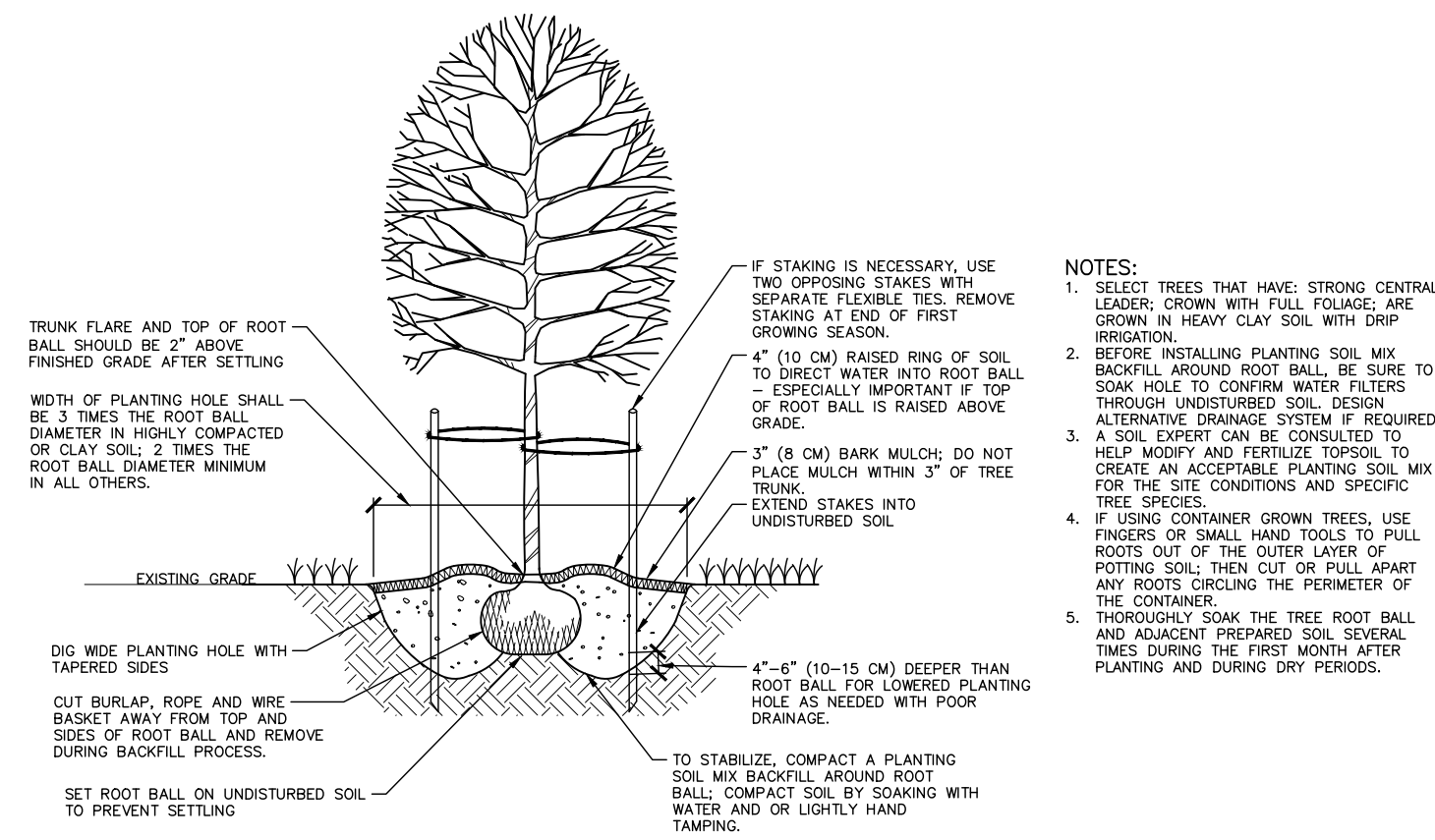


PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

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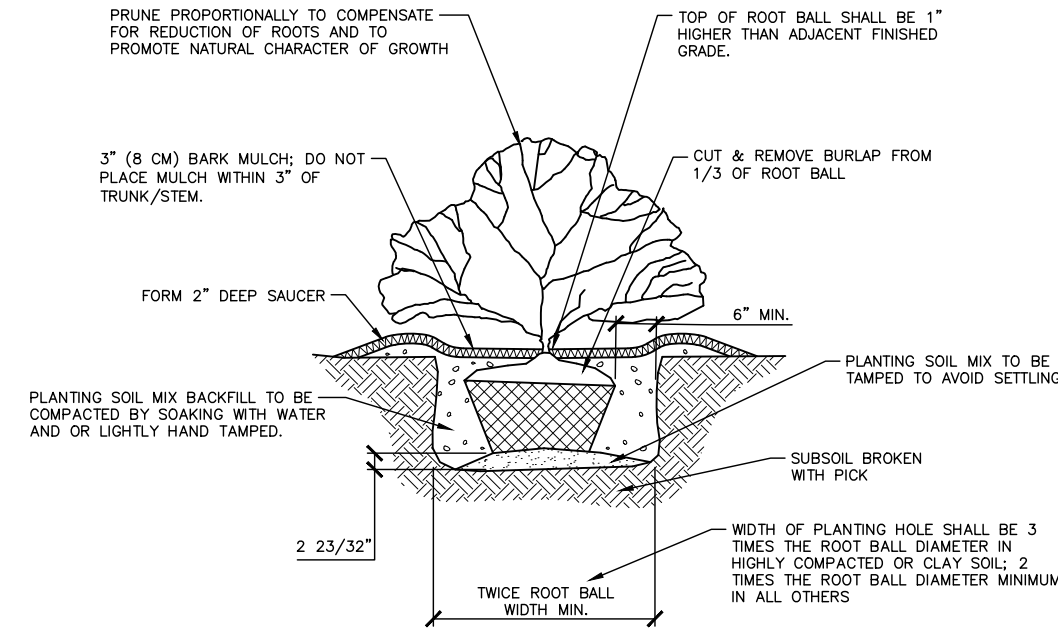
01 TREE INSTALLATION

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



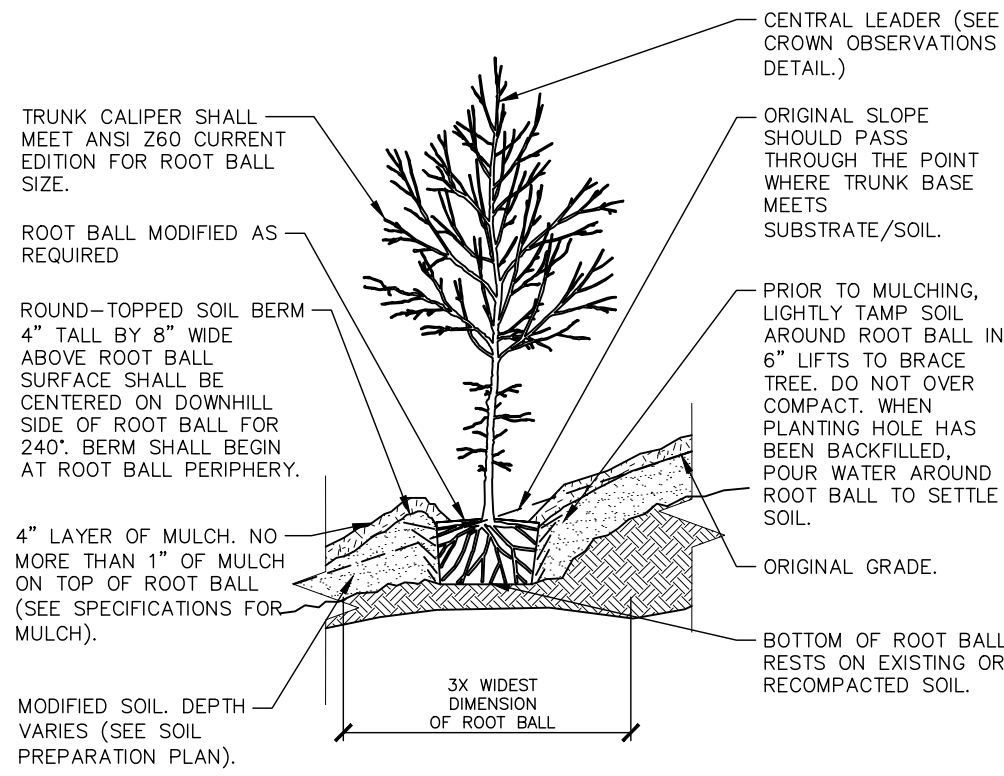
03 SHRUB INSTALLATION

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



02 MULTI-TRUNK TREE INSTALLATION

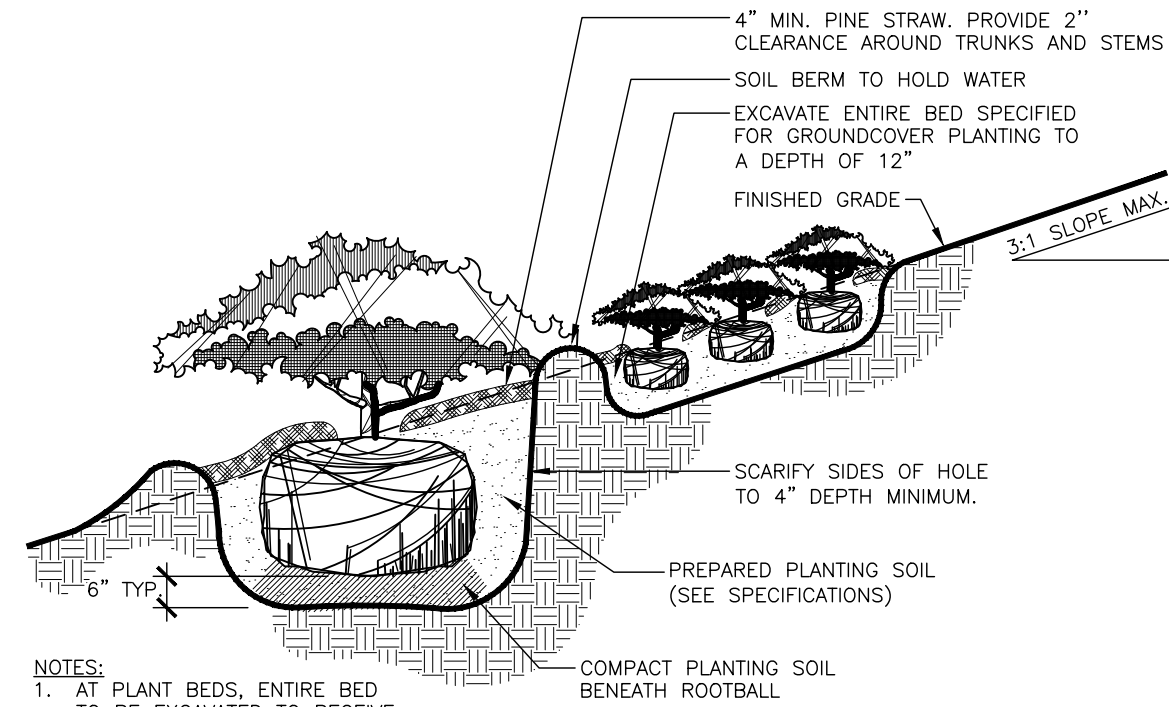
SCALE: 3/8"=1'-0"



- NOTES:
1. TREES SHALL BE OF QUALITY PRESCRIBED IN CROWN OBSERVATIONS AND ROO OBSERVATIONS DETAILS AND SPECIFICATIONS
 2. SEE SPECIFICATIONS FOR FURTHER REQUIREMENTS RELATED TO THIS DETAIL.

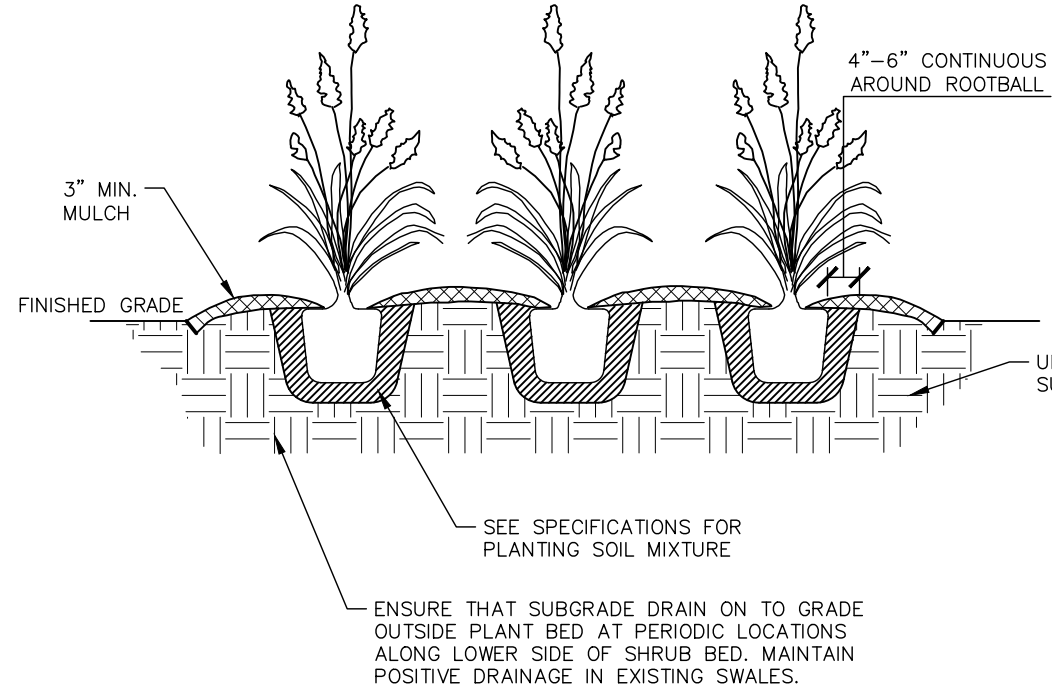
06 SHRUB PLANTING ON SLOPE

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



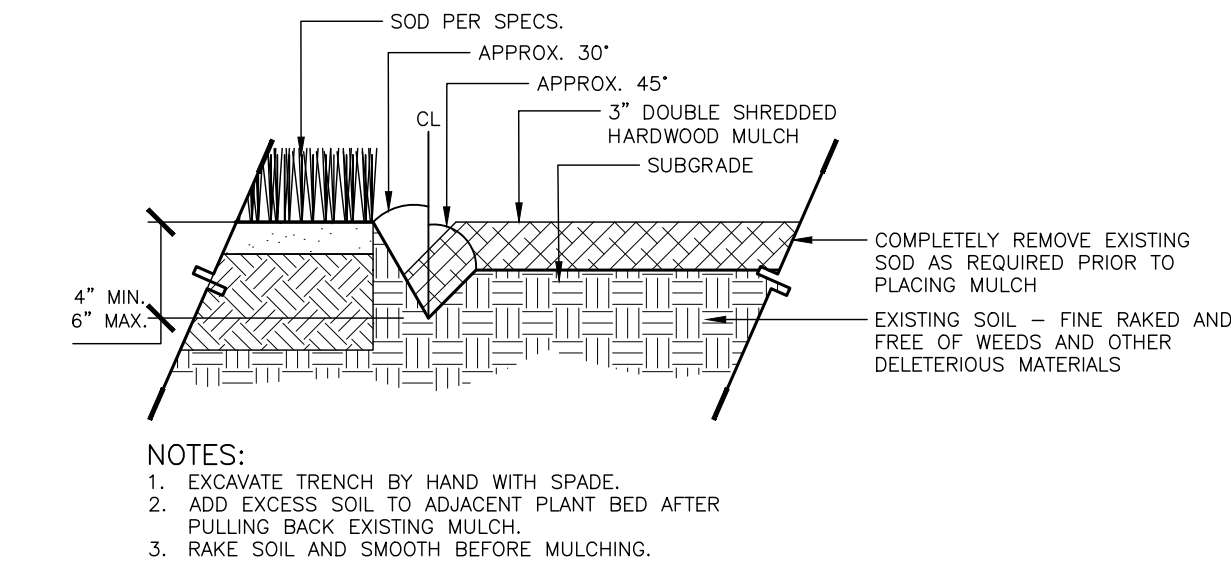
04 ORNAMENTAL GRASS PLANTING

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



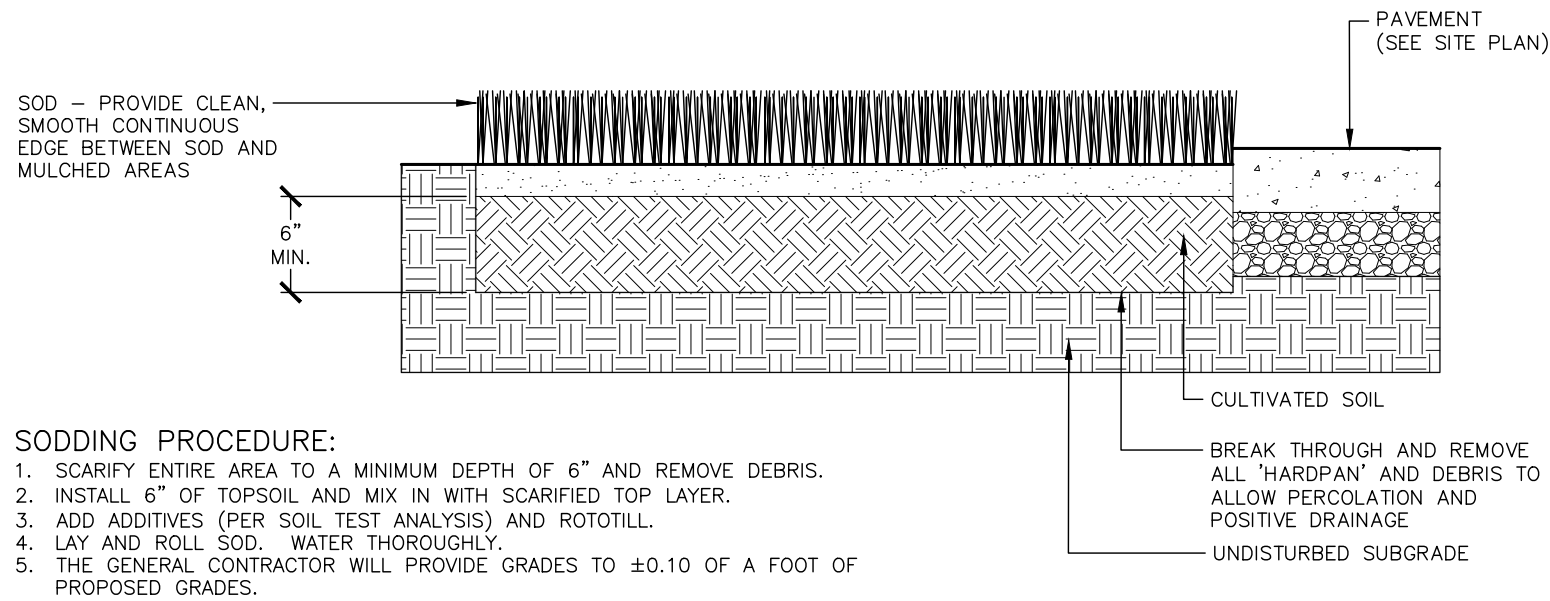
05 TREE ON SLOPE 5% (20:1) TO 50% (2:1) - MODIFIED SOIL

SCALE: N.T.S.



07 SOD INSTALLATION

SCALE: 1"=1'-0"



08 PLANTING BED EDGE

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

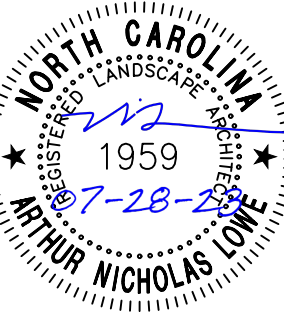
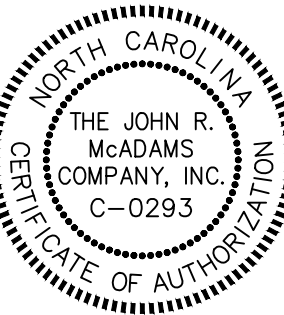
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PHONE: 704. 875. 6541



NORTH MECKLENBURG PARK SPLASH PAD CONSTRUCTION DRAWINGS 16131 OLD STATESVILLE RD HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-LS2-North Mecklenburg Park.dwg
CHECKED BY ANL
DRAWN BY KML
SCALE AS SHOWN
DATE 07/28/2023

SHEET

LANDSCAPE NOTES AND DETAILS

L5.02

DIVISION 16 - ELECTRICAL

SECTION 1601 - GENERAL PROVISIONS

01 SCOPE

THE WORK COVERED BY DIVISION 16 OF THESE SPECIFICATIONS CONSISTS OF FURNISHING ALL LABOR, EQUIPMENT, SUPPLIES, AND MATERIALS, AND PERFORMING ALL OPERATIONS, INCLUDING TRENCHING, BACKFILLING, CUTTING, CHANNELING, CHASING, AND PATCHING NECESSARY FOR THE INSTALLATION OF COMPLETE WIRING SYSTEMS IN STRICT ACCORDANCE WITH DIVISION 16 OF THESE SPECIFICATIONS, AND THE APPLICABLE DRAWINGS, INSTRUCTION TO BIDDERS, GENERAL CONDITIONS, AND DIVISION ONE, GENERAL REQUIREMENTS.

02 GENERAL

- A. THE INSTALLATION SHALL COMPLY WITH THE APPLICABLE RULES OF THE NATIONAL ELECTRICAL CODE AND RULES AND REGULATIONS OF LOCAL AUTHORITIES HAVING JURISDICTION. IN NO CASE SHALL THE MATERIALS AND WORKMANSHIP FAIL TO MEET THE MINIMUM REQUIREMENTS OF THE 2020 NATIONAL ELECTRICAL CODE.
1. THE REGULATIONS OF THE LOCAL UTILITY SHALL GOVERN SERVICE CONNECTIONS AND METERING PROVISIONS.
2. AN ELECTRICAL INSPECTION CERTIFICATE SHALL BE ISSUED BY THE LOCAL AUTHORITY BEFORE WORK WILL BE APPROVED FOR FINAL PAYMENT.
3. THIS CONTRACTOR SHALL DO ALL CUTTING NECESSARY FOR THE PROPER INSTALLATION OF THIS WORK AND SHALL REPAIR ANY DAMAGE DONE BY HIMSELF OR HIS WORKMEN TO CEILINGS, WALLS, FLOORS, PAVING, AND SEEDED AREAS.
- B. SITE INSPECTION. EACH ELECTRICAL BIDDER SHALL VISIT THE SITE OF WORK AND FAMILIARIZE HIMSELF WITH THE CHARACTER AND CONDITIONS OF THE SITE AND THE PROPOSED BUILDING.
- C. MATERIALS. ALL MATERIALS, DEVICES, APPLIANCES, AND EQUIPMENT USED IN THIS WORK SHALL BE NEW AND APPROVED BY THE UNDERWRITERS' LABORATORIES IN EVERY CASE WHERE THEY HAVE ESTABLISHED A STANDARD FOR THE PARTICULAR TYPE OF MATERIALS TO BE INSTALLED OR SHALL BE LABEL LISTED BY A NORTH CAROLINA APPROVED THIRD PARTY TESTING AGENCY.
1. ALL LIGHTING FIXTURES SHALL BEAR THE LABEL OF UNDERWRITERS' LABORATORIES OR BE LISTED UNDER THE REEXAMINATION SERVICE.
2. CATALOG NUMBERS AND TRADE NAMES IN THESE SPECIFICATIONS AND NOTED ON THE DRAWINGS ARE INTENDED TO DESCRIBE THE MATERIAL, DEVICE, OR APPARATUS WANTED.
- D. SUPERVISION. THE CONTRACTOR SHALL BE IN CHARGE OF THE WORK AT ALL TIMES DURING CONSTRUCTION. A THOROUGHLY COMPETENT FOREMAN WITH EXTENSIVE EXPERIENCE IN THE WORK TO BE PERFORMED UNDER THE CONTRACT, ANYONE DEEMED NOT CAPABLE BY THE ENGINEER SHALL BE REPLACED IMMEDIATELY UPON REQUEST AND AFTER A SATISFACTORY FOREMAN HAS BEEN ASSIGNED HE SHALL NOT BE WITHDRAWN WITHOUT THE WRITTEN CONSENT OF THE ENGINEER.
- E. TESTS. A FULL SCALE TEST WITH ALL LIGHTS, EQUIPMENT, AND APPLIANCES IN OPERATION SHALL BE CONDUCTED BY THE CONTRACTOR AT HIS EXPENSE AND THE ELECTRICAL SYSTEM SHALL BE PROVEN SATISFACTORY FOR OPERATION AND FREE FROM DEFECTS. PARTICULAR ATTENTION SHALL BE PAID TO THE BALANCING OF THE SINGLE PHASE LOADS ON THE THREE PHASE SYSTEM. ANY AND ALL DEFECTS SHALL BE PROMPTLY REMEDIED.
1. THE CONTRACTOR SHALL TEST ALL WIRING AND CONNECTIONS FOR CONTINUITY AND GROUNDS BEFORE FIXTURES ARE CONNECTED AND HE SHALL DEMONSTRATE BY MEGGER TEST THE INSULATION RESISTANCE OF ANY CIRCUIT OR GROUP OF CIRCUITS, WHERE SUCH INSULATION RESISTANCE TEST INDICATES THE POSSIBILITY OF FAULTY INSULATION. THE CONTRACTOR SHALL LOCATE THE POINT OR POINTS OF SUCH FAULTY INSULATION, AND HE SHALL PULL OUT THE CONDUCTOR AT FAULT, REPLACE WITH NEW CONDUCTORS, AND DEMONSTRATE BY FURTHER TEST THE ELIMINATION OF SUCH FAULT AT HIS OWN EXPENSE.
2. READINGS PHASE-TO-PHASE, PHASE-TO-NEUTRAL & PHASE-TO-GROUND SHALL BE 2 MEGAOHMS OR GREATER.

03 GROUNDING AND BONDING

ALL CONDUIT, NEUTRAL CONDUCTORS OF THE WIRING SYSTEMS, AND ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED. THE GROUND CONNECTION OF THE ELECTRICAL SYSTEM NEUTRAL AND CONDUIT SYSTEM SHALL BE MADE AT THE MAIN SERVICE SWITCH OR CIRCUIT BREAKER. ALL FEEDER AND BRANCH CIRCUIT CONDUITS SHALL HAVE A GREEN GROUNDING CONDUCTOR IN ADDITION TO THE PHASE AND NEUTRAL CONDUCTORS.

A. A THW COPPER GROUND CONDUCTOR SIZED IN ACCORDANCE WITH THE NEC SHALL BE EXTENDED IN CONDUIT FROM THE MAIN SERVICE EQUIPMENT TO THE POINT OF THE ENTRANCE OF THE WATER SERVICE. THE GROUNDING CONDUCTOR AT EACH END OF THE CONDUIT, CONNECTION TO WATER PIPE SHALL BE BY SUITABLE GROUND CLAMP OR BY LUG CONNECTION TO A PLUGGED TEE. IF FLANGED PIPES ARE ENCOUNTERED, CONNECTION SHALL BE MADE WITH THE LUG BOLTED TO THE SUPPLY SIDE OF THE FLANGED CONNECTION. ELECTRICAL BOND SHALL BE ESTABLISHED AROUND THE WATER METER IF APPLICABLE.

SECTION 1602 - BASIC MATERIALS AND METHODS

01 REQUIREMENTS OF SECTION 1601 SHALL APPLY.

02 WIRING. ALL WIRING SHOWN ON THE CONTRACT DRAWING SHALL BE IN CONDUIT UNLESS OTHERWISE HEREINAFTER SPECIFIED.

- A. BRANCH CIRCUIT CONDUCTORS SHALL BE AS INDICATED ON THE DRAWINGS.
- B. CONDUCTORS SHALL BE CONTINUOUS FROM OUTLET TO OUTLET, AND NO SPLICES SHALL BE MADE EXCEPT WITHIN OUTLET OR JUNCTION BOXES. UNCTION BOXES MAY BE UTILIZED WHERE REQUIRED.

03 CONDUIT SYSTEMS. CONDUIT SHALL BE RIGID STEEL CONDUIT, INTERMEDIATE METAL CONDUIT, OR ELECTRICAL METALLIC TUBING (EMT). EMT SHALL NOT BE INSTALLED UNDERGROUND OR IN SLABS ON GRADE.

A. AT THE CONTRACTOR'S OPTION RIGID SCHEDULE 40 NONMETALLIC CONDUIT (PVC) MAY BE USED IN LIEU OF STEEL CONDUIT WHERE INSTALLED UNDER BUILDING SLABS OR UNDERGROUND, AND SHALL BE INSTALLED IN STRICT ACCORDANCE WITH ARTICLE 352 OF THE NEC. RIGID STEEL CONDUIT SHALL BE USED WHERE BEND GREATER THAN 45 DEGREES ARE REQUIRED. EXPOSED PVC CONDUIT SHALL NOT BE PERMITTED.

04 CONDUIT INSTALLATION.

- A. CONDUITS SHALL BE CONCEALED WITHIN WALLS, CEILINGS, AND FLOOR WHERE POSSIBLE. EXPOSED RUNS OF CONDUIT SHALL BE SUPPORTED EVERY 8' WITH APPROVED TYPE SUPPORTS.
- B. GALVANIZED STEEL INSULATION THROAT COMPRESSION RING TYPE FITTINGS SHALL BE USED FOR EMT WORK.
- C. PULL CORDS SHALL BE INSTALLED IN ALL EMPTY CONDUITS. NO CONDULET TYPE FITTINGS SHALL BE ALLOWED ON SERVICE CONDUITS OR ANY OTHER CONDUIT 2" OR LARGER.
- D. WHERE STEEL AND PVC CONDUIT IS INSTALLED UNDERGROUND OR UNDER BUILDING SLABS JOINTS SHALL BE MADE WATERTIGHT. ALL CONDUIT INSTALLED UNDERGROUND SHALL BE ENCASED IN A MINIMUM OF 3" OF CONCRETE WITH 2" SEPARATION BETWEEN ADJACENT CONDUITS.
- E. UNDERGROUND CONDUIT OUTSIDE THE BUILDING SHALL HAVE A MINIMUM COVER OF 2' AND IF POSSIBLE SHALL BE GRADED SO AS TO HAVE A FALL OF AT LEAST 3" PER 100' TOWARD A DRAINAGE POINT.
1. ALL UNDERGROUND STEEL CONDUITS SHALL BE THOROUGHLY COATED WITH TWO COATS OF ASPHALTUM OR BITUMASTIC AND SHALL BE RETOUCED AS REQUIRED AFTER BEING MADE UP.

05 SECONDARY CONDUCTORS. A COMPLETE SYSTEM OF CONDUCTORS SHALL BE INSTALLED IN THE RACEWAY SYSTEM. ONLY POWDERED SOAPSTONE OR OTHER NON-DETERIOROUS LUBRICANT APPROVED BY THE ENGINEER MAY BE USED IN PULLING CONDUCTORS IN CONDUIT.

A. ALL CONDUCTORS SHALL BE COPPER. CONDUCTORS UNLESS OTHERWISE NOTED SHALL BE HEAT AND MOISTURE RESISTANT GRADE, THERMOPLASTIC INSULATED, TYPE THW, THWN, THHN, OR XHHW AS APPLICABLE.

1. CONDUCTORS NO. 8 AWG AND LARGER SHALL BE STRANDED COPPER. NO. 12 AWG AND NO. 10 AWG SHALL BE SOLID COPPER.

B. HOMERUNS MAY BE COMBINED IN ONE CONDUIT, PROVIDED ALL CONNECTIONS ARE IN ACCORDANCE WITH NEC REQUIREMENTS AND THE MAXIMUM UNBALANCED CURRENT IN THE NEUTRAL DOES NOT EXCEED THE CAPACITY OF THE CONDUCTOR.

C. COLOR CODE. ALL CONDUCTORS, FEEDERS, AND BRANCH CIRCUITS SHALL BE COLOR CODED BY PHASE AND SHALL BE PLAINLY MARKED IN ACCORDANCE WITH SECTIONS 210.5(C) AND 200.6 OF THE NEC; COLOR CODES SHALL BE AS FOLLOWS:

1. 120/240 VOLT, SINGLE PHASE, 3-WIRE SYSTEMS: PHASE A, BLACK; PHASE B, RED; GROUNDED NEUTRAL, WHITE.

2. GROUNDING CONDUCTORS SHALL BE GREEN.

06 SERVICE.

SERVICE ENTRANCE CONDUCTORS SHALL BE INDIVIDUAL CONDUCTORS IN CONDUIT, AS PREVIOUSLY SPECIFIED, FROM THE POWER COMPANY TRANSFORMER TO SERVICE SECTION OF THE MAIN SERVICE EQUIPMENT, ALL AS INDICATED ON THE DRAWINGS.

07 PANELBOARDS

- A. PANELBOARDS SHALL BE OF THE DEAD FRONT SAFETY TYPE. THE PANELBOARDS SHALL BE PROVIDED WITH THE SIZE AND NUMBER OF SINGLE, DOUBLE, OR TRIPLE POLE BRANCH CIRCUIT BREAKERS, BOLTED TO THE BUS, AS INDICATED ON THE DRAWINGS. PANELBOARD BUS SHALL BE COPPER.
1. CIRCUIT BREAKERS SHALL BE OF THE AUTOMATIC THERMAL MAGNETIC TYPE, QUICK-MAKE AND QUICK-BREAK FOR MANUAL AND AUTOMATIC OPERATION. ALL MULTIPOLE BREAKERS SHALL BE COMMON TRIP. HANDLE TIES WILL NOT BE ACCEPTABLE. PANELBOARDS SHALL BE PROVIDED WITH A GROUNDING TERMINAL BAR BONDED TO THE CABINET OR PANELBOARD FRAME.
2. CIRCUIT BREAKERS FOR ALL TWO(2) AND THREE(3) CIRCUIT HOMERUNS WITH A COMMON NEUTRAL SHALL BE EQUIPPED WITH A "TIE HANDLE" IN ORDER TO SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS THAT SHARE A COMMON NEUTRAL IN ACCORDANCE WITH NEC ART. 210.4(A),(B),&(C).
- B. PANELBOARDS USED AS SERVICE EQUIPMENT SHALL HAVE U.L. LISTING AS "SUITABLE FOR USE AS SERVICE EQUIPMENT", AND SHALL BE SO MARKED.
- C. SQUARE-D PANELBOARD, FUSED SWITCH, AND CIRCUIT BREAKER DESIGNATIONS ARE USED HEREIN AND ON THE DRAWINGS, BUT SIMILAR AND EQUAL PRODUCTS OF G.E., SIEMENS, OR CUTLER HAMMER ARE EQUALLY ACCEPTABLE. ALL CIRCUIT BREAKERS SHALL BE CALIBRATED FOR 40-DEGREES "C" OR BE AMBIENT COMPENSATED. CIRCUIT BREAKERS SHALL HAVE U.L. INTERRUPTING RATINGS AS INDICATED BY CLASS OF CIRCUIT BREAKER SHOWN ON THE DRAWINGS.
- D. 120/240-VOLT, 1-PHASE, 3-WIRE, GROUNDED SOLID NEUTRAL BRANCH CIRCUIT PANELBOARDS SHALL BE SQUARE-D "NQ". UNLESS OTHERWISE NOTED, 2-POLE CIRCUIT BREAKERS SHALL BE RATED FOR 120/240-VOLT AC, COMMON TRIP AND HANDLE.

08 CIRCUIT BREAKERS.

- A. INDIVIDUAL CIRCUIT BREAKERS SHALL BE THE MOLDED CASE TYPE OF THE FRAME AND TRIP RATING NOTED ON THE DRAWINGS IN NEMA 1 ENCLOSURE UNLESS NOTED OTHERWISE. FRAMES LISTED ARE SQUARE-D BUT EQUIVALENT CIRCUIT BREAKERS BY G.E., SIEMENS, OR WESTINGHOUSE ARE EQUALLY ACCEPTABLE.
1. ALL CIRCUIT BREAKERS SHALL BE AMBIENT COMPENSATED OR CALIBRATED FOR 40-DEGREES "C". CIRCUIT BREAKERS SHALL HAVE U.L. INTERRUPTING RATINGS AS INDICATED BY CLASS OF CIRCUIT BREAKERS SHOWN ON THE DRAWINGS.

09 DISCONNECTS.

- A. FUSED DISCONNECTING SWITCHES SHALL BE SQUARE-D TYPE "H" IN NEMA 1 ENCLOSURES, RATED FOR 250 OR 600-VOLTS AS APPLICABLE. UNLESS OTHERWISE NOTED, FUSES SHALL BE BUS FUSETRON[®] OR APPROVED EQUAL.
- B. UNFUSED DISCONNECTING SWITCHES SHALL BE TYPE "H" IN NEMA 1 OR 3R AS APPLICABLE ENCLOSURES.
1. SIMILAR AND EQUIVALENT EQUIPMENT AS MANUFACTURED BY G.E., SIEMENS, OR WESTINGHOUSE IS EQUALLY ACCEPTABLE. SWITCHES USED AS SERVICE SWITCHES SHALL BEAR SUCH U.L. LABEL, AND NAMEPLATE ON SWITCH SHALL SO INDICATE.

10 DEVICE PLATES. ALL DEVICE PLATES ON FLUSH OUTLETS SHALL BE "302" STAINLESS STEEL AND ON SURFACE BOXES SHALL BE GALVANIZED STEEL.

11 OUTLET AND JUNCTION BOXES. OUTLET BOXES SHALL BE GALVANIZED SHEET STEEL OF A CLASS TO SATISFY THE CONDITIONS FOR EACH OUTLET. JUNCTION ND PULL BOXES SHALL BE CODE GAUGE. GALVANIZED SHEET METAL BOXES SHALL NOT BE LESS THAN THE MINIMUM SIZE RECOMMENDED BY THE NEC. EACH OUTLET AND JUNCTION BOX SHALL BE FITTED WITH AN APPROPRIATE COVER.

12. PANELBOARD CABINETS. CABINETS FOR PANELBOARDS, UNLESS OTHERWISE NOTED, SHALL HAVE A MINIMUM WIDTH OF 20" AND SHALL BE PROVIDED WITH NO LESS THAN 4" WIRING GUTTERS AT THE SIDES, TOP, AND BOTTOM. CABINETS SHALL BE CONSTRUCTED OF ZINC COATED SHEET STEEL.

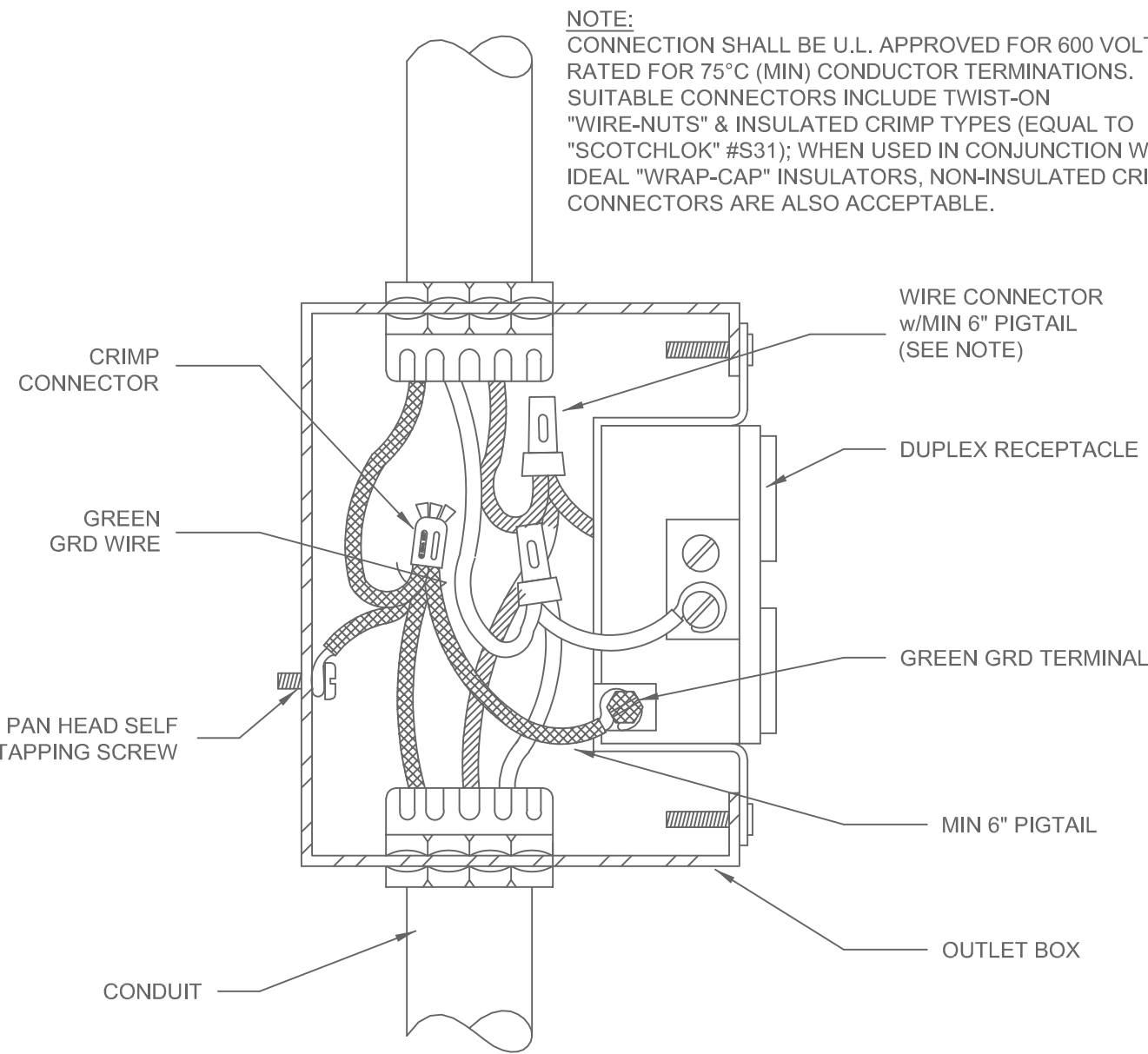
A. PANELBOARDS SHALL BE OF THE DEAD FRONT SAFETY TYPE. THE PANELBOARDS SHALL BE PROVIDED WITH THE SIZE AND NUMBER OF SINGLE, DOUBLE, OR TRIPLE POLE BRANCH CIRCUIT BREAKERS. PANELBOARD BUS SHALL BE COPPER.

13 DEMOLITION AND ALTERATION. THIS CONTRACTOR SHALL EITHER REMOVE COMPLETELY, OR MECHANICALLY OR ELECTRICALLY SECURE ALL ELECTRICAL CONDUIT, CONDUCTORS, AND OUTLETS WHICH ARE SHOWN AS BEING ABANDONED. ELECTRICAL MATERIALS AND EQUIPMENT WHICH ARE SHOWN AS BEING REMOVED OR REPLACED SHALL, UNLESS OTHERWISE NOTED TO BE RELOCATED OR REUSED, BE TURNED OVER TO THE OWNER. ALL EXISTING ELECTRICAL OUTLETS NOT SHOWN AS BEING ABANDONED SHALL BE RECONNECTED.

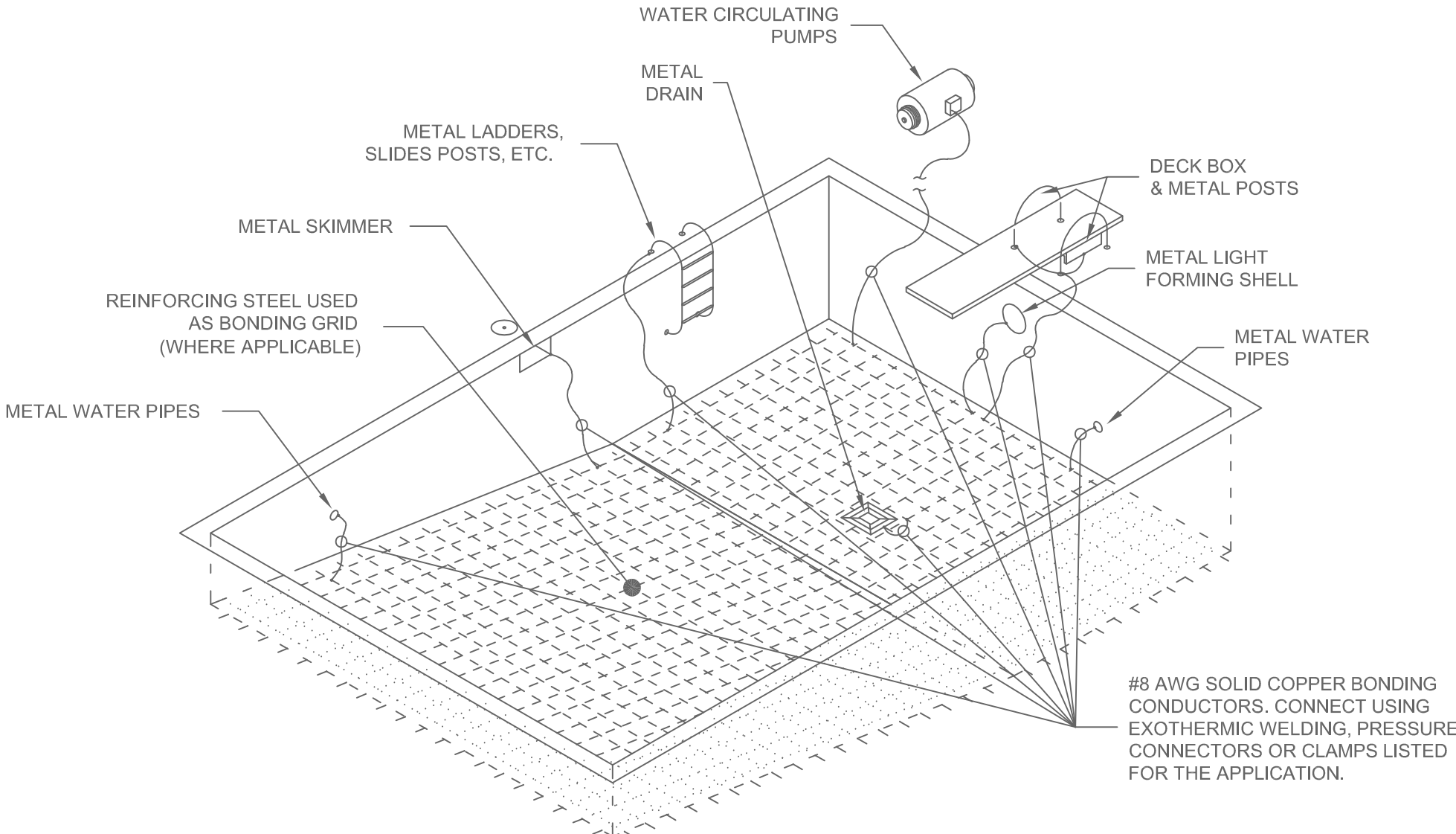
ELECTRICAL SYMBOLS

THE ELECTRICAL SYMBOLS HEREINAFTER LISTED ARE A BASIC STANDARD FOR ALL PROJECTS AS APPLICABLE. EACH AND EVERY SYMBOL MAY NOT NECESSARILY APPEAR ON THE SPECIFIC PROJECT DRAWINGS. ALL DIMENSIONS ARE TO TOP OF THE OUTLET BOX UNLESS OTHERWISE NOTED. THE ELECTRICAL CONTRACTOR SHALL COORDINATE THE EXACT OUTLET HEIGHT WITH COUNTERS, BACKSPLASHES, WAINSCOT, AND EQUIPMENT TO ASSURE PROPER MOUNTING HEIGHTS.

- CONDUIT CONCEALED IN OR ABOVE CEILING, IN OVERHEAD SLAB OR IN WALL, AS APPLICABLE.
- CONDUIT CONCEALED IN OR BELOW FLOOR, BELOW GRADE OR IN WALL, AS APPLICABLE.
- CONDUIT EXPOSED ON SURFACE OF CEILING, OVERHEAD STRUCTURE OR WALL AS APPLICABLE.
- NUMBER OF CURRENT CARRYING CONDUCTORS PLUS NEUTRAL IF REQUIRED. EQUIPMENT GROUNDING CONDUCTORS SIZED PER N.E.C. ARE NOT INCLUDED IN QUANTITY INDICATED, BUT SHALL BE INCLUDED IN ALL RACEWAYS.
- CONDUIT TURNING UP/CONDUIT TURNING DOWN.
- CONDUIT STUB UP 6" AFF WITH CONNECTION TO EQUIPMENT.
- HOMERUN TO PANELBOARD, MOTOR CONTROL CENTER, OR SWITCHBOARD AS APPLICABLE.
- JUNCTION BOX SIZED PER N.E.C. UNLESS OTHERWISE INDICATED.
- JUNCTION BOX WITH FLEX CONNECTION TO EQUIPMENT.
- SINGLE OR DOUBLE POLE SWITCH AS INDICATED, MOUNTED 48" AFF.
- THREE-WAY OR FOUR-WAY SWITCH AS INDICATED, MOUNTED 48" AFF.
- SWITCH AS SPECIFIED ABOVE WITH CAST WEATHERPROOF COVER AND OUTLET AND BOX ADAPTER IF REQUIRED.
- SWITCH AS SPECIFIED ABOVE WITH OUTLETS CONTROLLED INDICATED BY BY SUBSCRIPT.
- SWITCH WITH 0-10 V LOW VOLTAGE DIMMING CAPABILITIES.
- WALL MOUNTED OCCUPANCY SENSOR, WITH DUAL TECHNOLOGY. AUTO ON/OFF. FIELD CHANGEABLE TO VACANCY SENSOR.
- SWITCH AS SPECIFIED ABOVE EXCEPT WITH PILOT LIGHT.
- SWITCH AS SPECIFIED ABOVE EXCEPT KEY OPERATED.
- LIGHTING ZONE OVERRIDE CONTROL MOUNTED 48" AFF. LABELED DEVICE (LIGHTING OVERRIDE)
- NEMA 5-20R DUPLEX CONVENIENCE RECEPTACLE MOUNTED 20". UNLESS NOTED OTHERWISE.
- NEMA 5-20R DUPLEX CONVENIENCE RECEPTACLE MOUNTED 48" AFF OR BACKSPLASH.
- RECEPTACLE AS SPECIFIED ABOVE EXCEPT WITH INTEGRATED GROUND FAULT CIRCUIT INTERRUPTER (GFCI).
- GFCI RECEPTACLE SIMILAR TO THOSE SPECIFIED ABOVE EXCEPT U.L. "WRP" (WEATHER-RESISTANT) LISTED AND PROVIDED WITH A WEATHERPROOF COVER.
- DEAD FRONT GFCI PROTECTIVE DEVICE WITH TEST/RESET BUTTONS AND STATUS INDICATOR AS REQUIRED PER NEC ARTICLE 210.8 OR 422.5. INSTALL IN READILY ACCESSIBLE LOCATION THAT IS NEAR THE PROTECTED APPLIANCE RECEPTACLE. PROVIDE ENGRAVED NAMEPLATE INDICATING PROTECTED OUTLET OR APPLIANCE (i.e., DISHWASHER, REFRIGERATOR, VENDING MACHINE, ETC.).
- NEMA 5-20R RECEPTACLE TO POWER ELECTRIC WATER COOLER (WHERE APPLICABLE). FURNISH GFCI BREAKER FOR CIRCUIT FEEDING UNIT. COORDINATE EXACT COORDINATE EXACT PLACEMENT WITH PLUMBING CONTRACTOR & LOCAL CODE ENFORCEMENT.
- CONCEALED SERVICE FLOOR OUTLET WITH ONE OR TWO NEMA 5-15R DUPLEX RECEPTACLES AS INDICATED. LEGRAND NO. RFB2, RFB4 OR RFB6 WITH APPLICABLE FACEPLATES AS REQUIRED.
- CONCEALED SERVICE FLOOR OUTLET FOR COMMUNICATIONS (TELEPHONE, DATA). LEGRAND NO. RFB2, RFB4 OR RFB6 WITH APPLICABLE FACEPLATES AS REQUIRED.
- CONCEALED SERVICE FLOOR OUTLET FOR POWER (NEMA 5-15R DUPLEX) AND COMMUNICATIONS. LEGRAND NO. RFB2, RFB4 OR RFB6 WITH APPLICABLE FACEPLATES AS REQUIRED.
- POWER CONNECTION TO SPLASH PAD CONTROLLER. COORDINATE EXACT LOCATION WITH G.C., PROVIDE EQUIPMENT RACK, MOUNT PANEL AND WIRE COMPLETE.
- TELEPHONE/DATA OUTLET, 20" TO TOP OF BOX UNLESS OTHERWISE NOTED. PROVIDE 3/4" EC TO ABOVE ACCESSIBLE CEILING.
- TELEPHONE/DATA OUTLET, 48" TO TOP OF BOX UNLESS OTHERWISE NOTED. PROVIDE 3/4" EC TO ABOVE ACCESSIBLE CEILING.
- LIGHTING POWER OR DISTRIBUTION PANELBOARD AS INDICATED AND SCHEDULED.
- EQUIPMENT CONTROL PANEL, CABINET, OR MODULE AS APPLICABLE.
- FUSIBLE OR NON-FUSIBLE DISCONNECT FURNISHED WITH EQUIPMENT UNDER OTHER DIVISIONS OF THESE SPECIFICATIONS. TERMINATE WIRING ON LINE SIDE OF DISCONNECT.
- NON-FUSIBLE DISCONNECT. NUMERALS INDICATE SIZE AND POLES. WP INDICATES NEMA 3R ENCLOSURE OR WITH OTHER ENCLOSURE AS INDICATED.
- FUSIBLE DISCONNECT. NUMERALS INDICATE SIZE, POLES, AND FUSETRON SIZE. WP INDICATES NEMA 3R ENCLOSURE OR WITH OTHER ENCLOSURE AS INDICATED.
- CIRCUIT BREAKER NUMERALS INDICATE AMPERE RATING, POLES, AND FRAME. WP INDICATES 3R ENCLOSURE OR WITH OTHER ENCLOSURE AS INDICATED.
- MANUAL MOTOR STARTER SINGLE PHASE.
- MAGNETIC MOTOR STARTER WITHOUT DISCONNECT.
- COMBINATION MAGNETIC MOTOR STARTER WITH CIRCUIT BREAKER DISCONNECT (CMCB).
- COMBINATION MAGNETIC MOTOR STARTER WITH NON-FUSIBLE DISCONNECT (CMNF).
- COMBINATION MAGNETIC MOTOR STARTER WITH FUSIBLE DISCONNECT. NUMERAL INDICATES FUSETRON SIZE (CMFD).
- 120 OR 240-VOLT, SINGLE PHASE MOTOR, HORSEPOWER AS INDICATED.
- 208 OR 240-VOLT, THREE PHASE MOTOR, HORSEPOWER AS INDICATED.
- 480 OR 575-VOLT, 3-PHASE MOTOR, HORSEPOWER AS INDICATED.
- DRY TYPE TRANSFORMER, 3-PHASE, 4-WIRE, KVA AS INDICATED.
- EXISTING PANELBOARDS.
- EXISTING WIRE AND CONDUIT TO BE REUSED TO EXTENT FEASIBLE.
- EXISTING WIRE AND CONDUIT TO BE REMOVED.
- EXISTING ELECTRICAL EQUIPMENT TO REMAIN IN PLACE.
- EXISTING ELECTRICAL EQUIPMENT TO BE RELOCATED AS INDICATED.
- EXISTING ELECTRICAL EQUIPMENT TO BE REPLACED.
- EXISTING ELECTRICAL EQUIPMENT TO BE REMOVED.



1
E001
TYPICAL DEVICE WIRING DETAIL
NO SCALE



2
E001
POOL GROUNDING DETAIL
NO SCALE

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JOB NO. **P2302041** DATE **06.13.2023**
DESIGN **ZCJ/AGR** DRAWN **ZCJ**
CHECKED **AGR**



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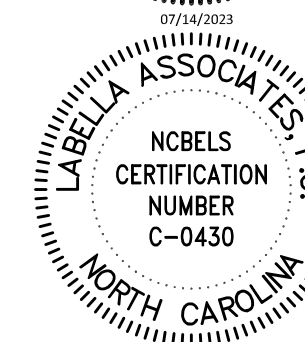
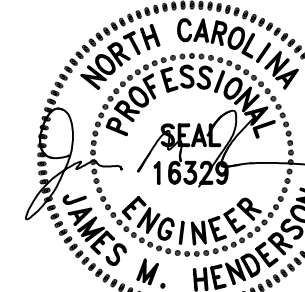
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**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME E-P2302041 N MECK SPLASH PAD
CHECKED BY AGR
DRAWN BY ZCJ
SCALE 1"=10'-0"
DATE 07/14/2023

SHEET

**ENLARGED ELECTRICAL
SITE PLAN**

E001

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

PANEL: B					TYPE: EX		FLUSH		120/240 VOLT		1 Ø		3 W		300 AMP MCB				
CCT	FR	P	TRIP	WIRE	COND	SERVING	VA	ØA	ØB	VA	SERVING	COND	WIRE	TRIP	P	FR	CCT		
1	EX	1	20	EX	EX	[EX] EWC	250	750		500	[EX] VEND. MCH.	EX	EX	20	1	EX	2		
3	EX	1	20	EX	EX	[EX] VEND. MCH.	500		1000	500	[EX] VEND. MCH.	EX	EX	20	1	EX	4		
5	EX	1	20	EX	EX	[EX] EXH FAN	355	710		355	[EX] EXH FAN	EX	EX	20	1	EX	6		
7	EX	1	20	EX	EX	[EX] RECPY	180		700	520	[EX] LIGHTING	EX	EX	20	1	EX	8		
9	EX	1	20	EX	EX	[EX] LIGHTING	1070	3570		2500	[EX] HEATER	EX	EX	30	2	EX	10		
11	EX	2	30	EX	EX	[EX] HEATER	2500		5000	2500		[EX] WATER HEATER	EX	EX	70	2	EX	12	
13							2500	8500		6000			[EX] HEATER	EX	EX	20	2	EX	14
15	EX	2	30	EX	EX	[EX] HEATER	2500		8500	6000	[EX] HEATER			EX	EX	20	2	EX	16
17							2500	3500		1000		[EX] HEATER		EX	EX	20	2	EX	18
19	EX	2	30	EX	EX	[EX] HEATER	2500		3500	1000			[EX] HEATER	EX	EX	20	2	EX	20
21							2500	2500		0	SPACE			:	:	:	:	:	22
23	EX	1	20	12	3/4	WATER DIST. CONTROLS	500		500	0	SPACE	:		:	:	:	:	24	
25	EX	1	20	12	3/4	POOL RACK RECPY.	180	180		0	SPACE	:	:	:	:	:	26		
27	:	:	:	:	:	SPACE	0		0	0	SPACE	:	:	:	:	:	28		
29	:	:	:	:	:	SPACE	0	0		0	SPACE	:	:	:	:	:	30		
31	:	:	:	:	:	SPACE	0		0	0	SPACE	:	:	:	:	:	32		
33	:	:	:	:	:	SPACE	0	0		0	SPACE	:	:	:	:	:	34		
35	:	:	:	:	:	SPACE	0		0	0	SPACE	:	:	:	:	:	36		
37	:	:	:	:	:	SPACE	0	0		0	SPACE	:	:	:	:	:	38		
39	:	:	:	:	:	SPACE	0		0	0	SPACE	:	:	:	:	:	40		
41	:	:	:	:	:	SPACE	0	0		0	SPACE	:	:	:	:	:	42		
ALL TERMINATIONS SHALL BE SUITABLE FOR 75°C COPPER OR ALUMINUM						CONN. VA PER PHASE	19710	19200	TOTAL VOLT AMPS:								38910		
						AMPS PER PHASE	164	160	AVERAGE AMPS:								162		
						AIC RATING: 10,000 AMPS													
LOADS	LIGHTING		RECEPTS		ELEC. HEAT		HVAC		OTHER		SPARE								
CONN KVA	0		0		0		0		0		0				TOTAL DEMAND KVA:		0		
DEMAND FACTOR	x 1.25		NEC 220.44		x1.25		x1.0		x 1.0		x 0.0				DEMAND AMPS:		0		
TOTAL	0		0		0		0		0		0								

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JOB NO. P2302041 DATE 06.13.2023

DESIGN ZCJ//AGR DRAWN ZCJ

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NORTH CAROLINA
PROFESSIONAL
SEAL
16329
JAMES M. HENDERSON
ENGINEER

06/14/2023

LABELLA ASSOCIATES, P.C.
NCEELS
CERTIFICATION
NUMBER
C-0430
NORTH CAROLINA

REVISIONS

NO.	DATE
-----	------

PLAN INFORMATION

PROJECT NO.	HUN-22003
FILENAME	E-P2302041 N MECK SPLASH PAD
CHECKED BY	AGR
DRAWN BY	ZCJ
SCALE	1"=40'-0"
DATE	07/14/2023

SHEET

ELECTRICAL
SITE PLAN
E101

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

1 ELECTRICAL SITE PLAN

1" = 40' - 0"

2 ELECTRIC RISER DIAGRAM

NOT TO SCALE

V:\13.0\2302041 N MECK SPLASH PAD\p2302041 N MECK SPLASH PAD.dwg, 7/14/2023 1:17:59 AM, Jordan, Zachary



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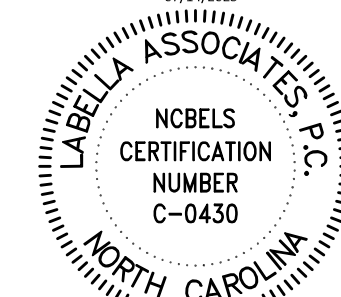
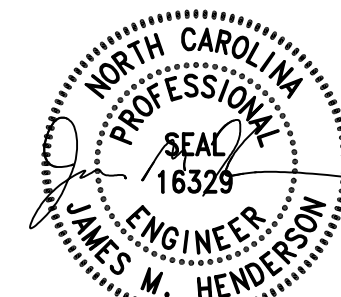
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REVISIONS

NO. DATE

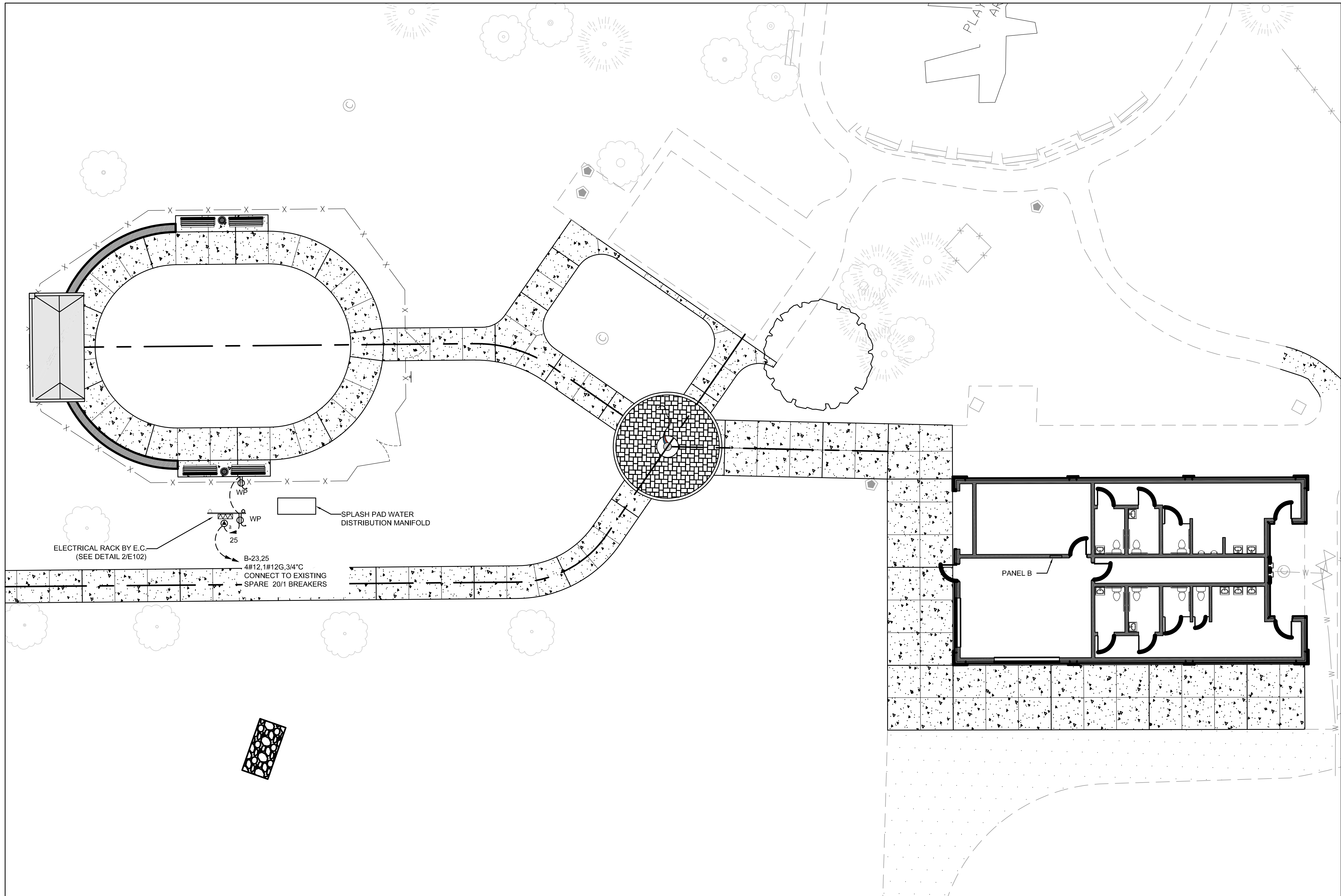
PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME E-P2302041 N MECK SPLASH PAD
CHECKED BY AGR
DRAWN BY ZCJ
SCALE 1"=10'-0"
DATE 07/14/2023

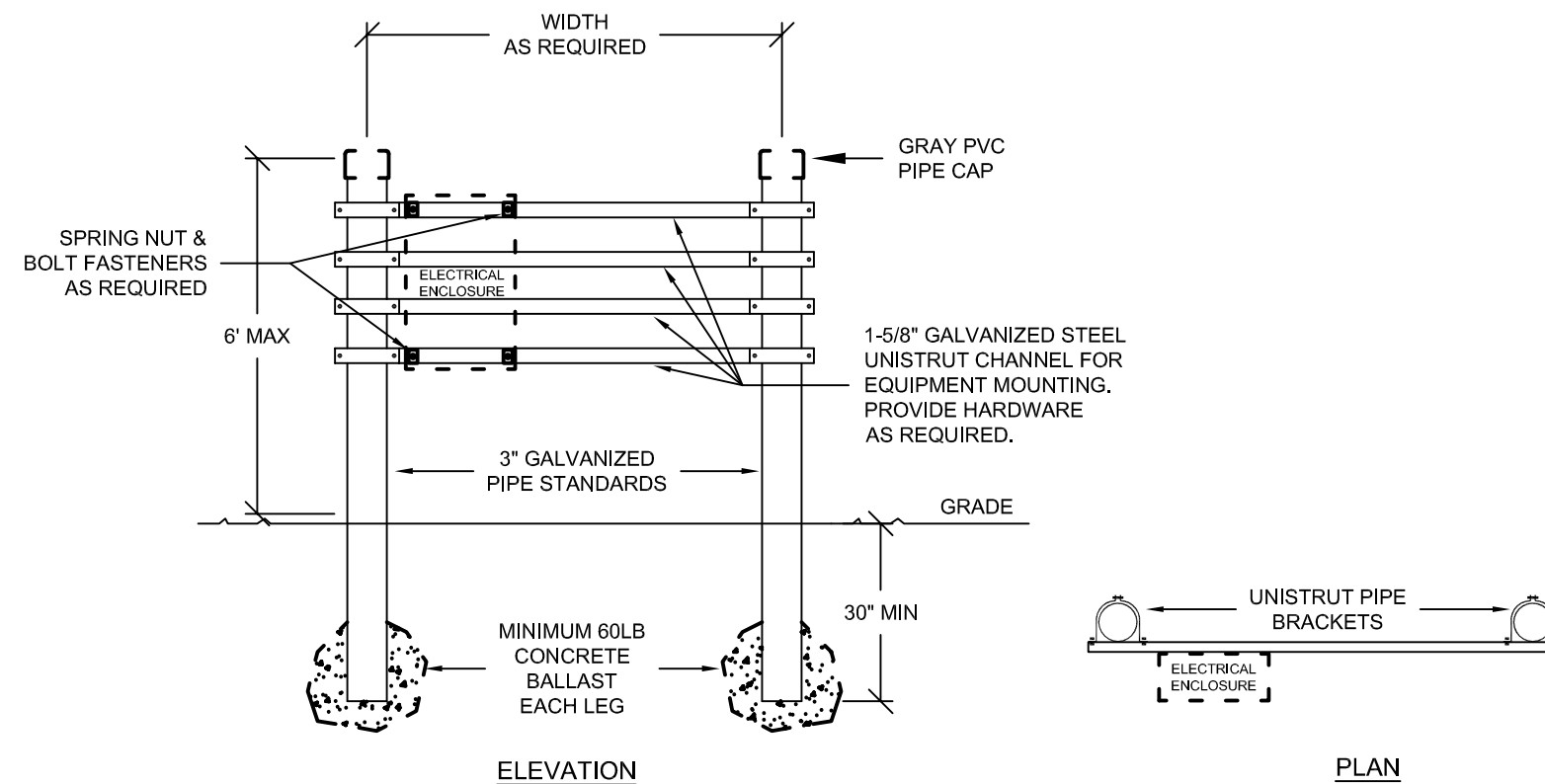
SHEET

ENLARGED ELECTRICAL
SITE PLAN

E102



1 ENLARGED ELECTRICAL SITE PLAN
1" = 10' - 0"



2 DETAIL - EQUIPMENT RACK
NOT TO SCALE

\\wfh\file\Projects\2023\23402- NC Huntersville\Drawings\Discipline\Architect\2023.06.12\HUN22003-TitleBlock-24x36.dwg, 10/15/2018 4:06:37 PM, Rob Balgeman

SCHEDULE - SAFETY & MAINTENANCE EQUIPMENT			
QTY	PRODUCT NAME	MANUFACTURER	NOTES
1	25 PERSON AQUATIC FIRST AID KIT	WATER SAFETY PRODUCTS	25 PERSON OSHA FIRST AID KIT TO INCLUDE BIOHAZARD COMPLIANCE RESPONSE AND CPR MICROMASK WITH NITRILE GLOVES

SCHEDULE - SHEET LIST	
SHEET NO.	SHEET NAME
PL100	OVERALL AQUATIC PLAN
PL110	POOL A - SPLASH PAD PLANS
PL111	POOL A - SPLASH PAD FEATURE DIMENSION PLAN
PL112	POOL A - SPLASH PAD SECTIONS AND DETAILS
PL200	STRUCTURAL NOTES, PLAN(S) AND SCHEDULE
PL210	STRUCTURAL DETAILS
PL300	OVERALL PIPING PLAN
PL301	MECHANICAL NOTES

GENERAL NOTES:

- SCHEDULE QUANTITIES ARE SHOWN FOR VALUE ENGINEERING PURPOSES. IT IS THE INSTALLING CONTRACTORS RESPONSIBILITY TO VERIFY QUANTITIES REQUIRED.
- CONTRACTOR SHALL CONTACT ENGINEER FOR ELECTRONIC DRAWING FILES PRIOR TO COMMENCING POOL STAKING WORK.
- ENGINEER WILL PROVIDE ELECTRONIC PLAN VIEW OF ALL POOLS IN AUTOCAD DRAWING FORMAT FOR CONTRACTOR'S USE TO LOCATE STRUCTURES AND RELATED POOL DECK EQUIPMENT.
- SEE 13 / PL112 BONDING DETAIL FOR ALL POOLS.

CODES, STANDARDS AND REGULATIONS:

CONTRACTOR SHALL BE FAMILIAR WITH ALL CODES AND STANDARDS LISTED BELOW AND ALERT THE ARCHITECT/ENGINEER TO CONFLICTS IN THE DRAWINGS

CODE JURISDICTION

UNITED STATES, HUNTERSVILLE, NORTH CAROLINA, MECKLENBURG COUNTY

CODES:

2018 NORTH CAROLINA STATE BUILDING CODE

ACCESSIBILITY STANDARDS AND REGULATIONS:

UNITED STATES:

2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

BATHER CAPACITY

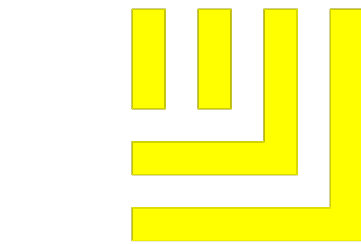
BATHER CAPACITY IS CALCULATED IN ACCORDANCE WITH SECTION 15A NCAC 18A.2529 OF NORTH CAROLINA CODE AS FOLLOWS.

- POOL A
 - 1217 (SF) INTERACTIVE PLAY AREA DIVIDED BY 25 (SF/BATHER) = 48 BATHERS

TAG LEGEND	
PIPE TAG LINE TYPE IDENTIFIER SYSTEM IDENTIFIER PIPE IDENTIFIER POOL IDENTIFIER	POOL EQUIPMENT TAG POOL IDENTIFIER EQUIPMENT IDENTIFIER
MECHANICAL EQUIPMENT TAG EQUIPMENT IDENTIFIER SYSTEM IDENTIFIER POOL IDENTIFIER	DIMENSION TAG POINT LOCATION POINT IDENTIFIER
WATER FEATURE TAG FEATURE DESIGNATOR EQUIPMENT IDENTIFIER	ELEVATION TAG ELEVATION LOCATION REFERENCE
CUSTOM RAILGOODS TAG POOL IDENTIFIER RAILGOODS IDENTIFIER	POOL STRUCTURAL TAG POOL IDENTIFIER WALL TYPE IDENTIFIER
POOL FIXTURE TAG POOL IDENTIFIER POOL FIXTURE DESIGNATOR EQUIPMENT IDENTIFIER	REVISION TAG REVISION NUMBER
POOL FINISH TAG FINISH TYPE ID POOL IDENTIFIER FINISH COLOR ID FINISH DESCRIPTION	DIMENSIONAL UNITS IMPERIAL UNITS METRIC UNITS (mm)
POOL ACCESSIBILITY TAG P = PRIMARY S = SECONDARY MEANS OF ACCESS	POOL FLOOR ELEVATION RELATIVE TO (SWL) ELEVATION

EQUIPMENT IDENTIFIER KEY	
AC - AIR COMPRESSOR	HX - HEAT EXCHANGER
AF - AUTOFILL	P - PUMP
AOP - ADVANCED OXIDATION PROCESS	PV - PNEUMATIC MAIN DRAIN VALVE
AP - pH CONTROL PUMP	S - STRAINER
AS - pH CONTROL STORAGE	SC - CONTAINMENT PALLETE
BP - BOOSTER PUMP	SV - SURGE TANK FAN
C - CHEMICAL CONTROLLER	UV - ULTRA-VIOLET DISINFECTION
CP - CHLORINE FEED PUMP	V - VARIABLE FREQUENCY DRIVE
CS - CHLORINE STORAGE	WC - WATER CHILLER
EV - ELECTRONIC MAIN DRAIN VALVE	
F - FILTER	
FM - FLOW METER	
FP - FLOW METER POWER SUPPLY	
H - HEATER	

ABBREVIATIONS	
AHJ - AUTHORITY HAVING JURISDICTION	P&ID - PIPING & INSTRUMENTATION DIAGRAM
BO - BOTTOM OF	PL - POOL LIFT
CJ - CONTROL JOINT	PS - POOL STAIRS
DIA - DIAMETER	SCH - SCHEDULE
EJ - EXPANSION JOINT	SE - SLOPED ENTRY
EW - EACH WAY	SS - STAINLESS STEEL
FFE - FINISH FLOOR ELEVATION	SWL - STATIC WATER LEVEL
ID - INSIDE DIAMETER	TO - TOP OF
MAX - MAXIMUM	TS - TRANSFER SYSTEM
MIN - MINIMUM	TUBC - TRUE UNION CHECK VALVE
NC - NORMALLY CLOSED	TUBV - TRUE UNION BALL VALVE
NO - NORMALLY OPEN	TW - TRANSFER WALL
NPS - NOMINAL PIPE SIZE	TYP - TYPICAL
OC - ON CENTER	WD - WATER DEPTH
OD - OUTSIDE DIAMETER	
OWE - OPERATING WATER ELEVATION	



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**NORTH MECKLENBURG
PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

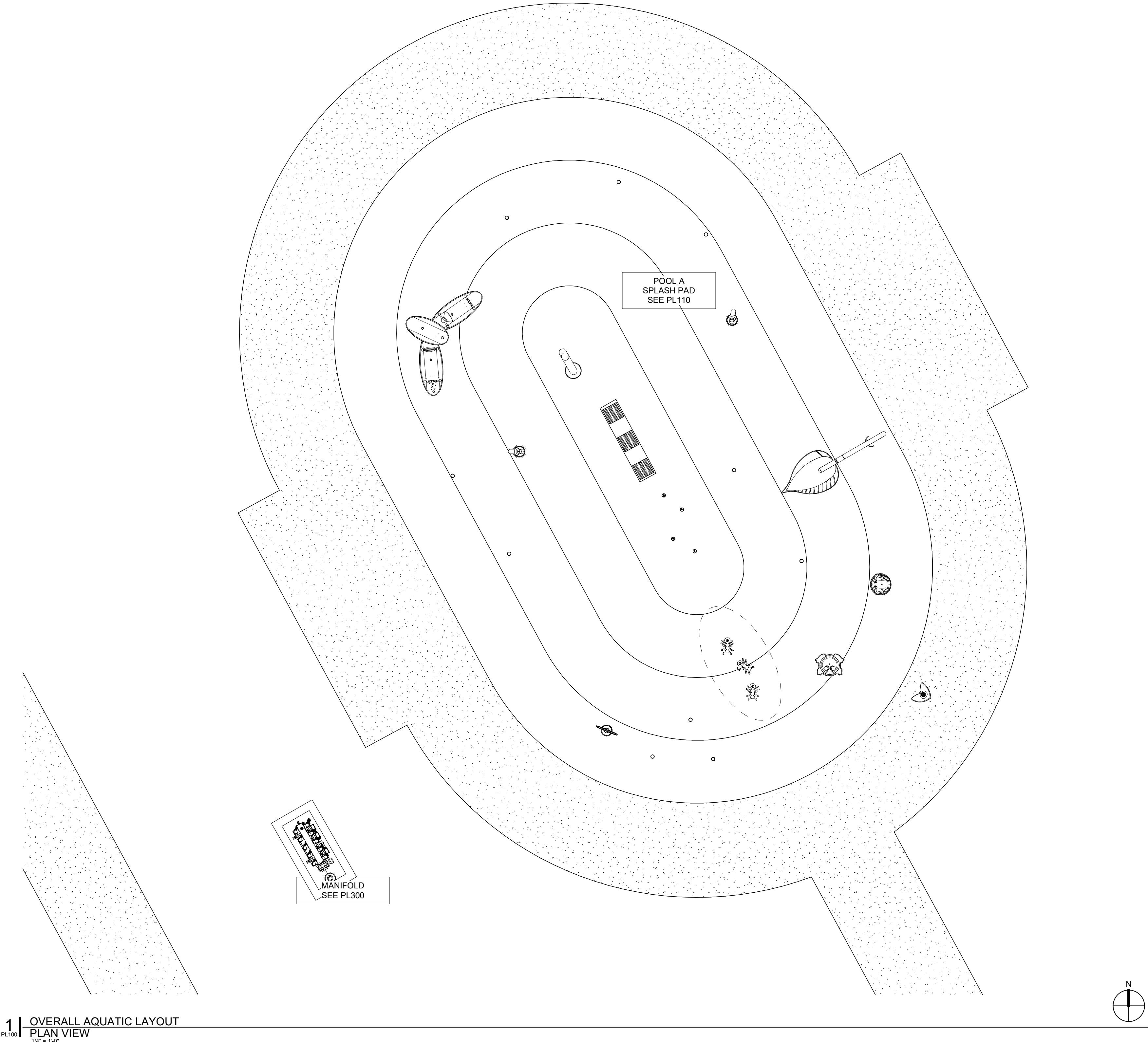
PLAN INFORMATION

PROJECT NO. 22402
FILENAME
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DATE 07/14/2023

SHEET

OVERALL AQUATIC PLAN

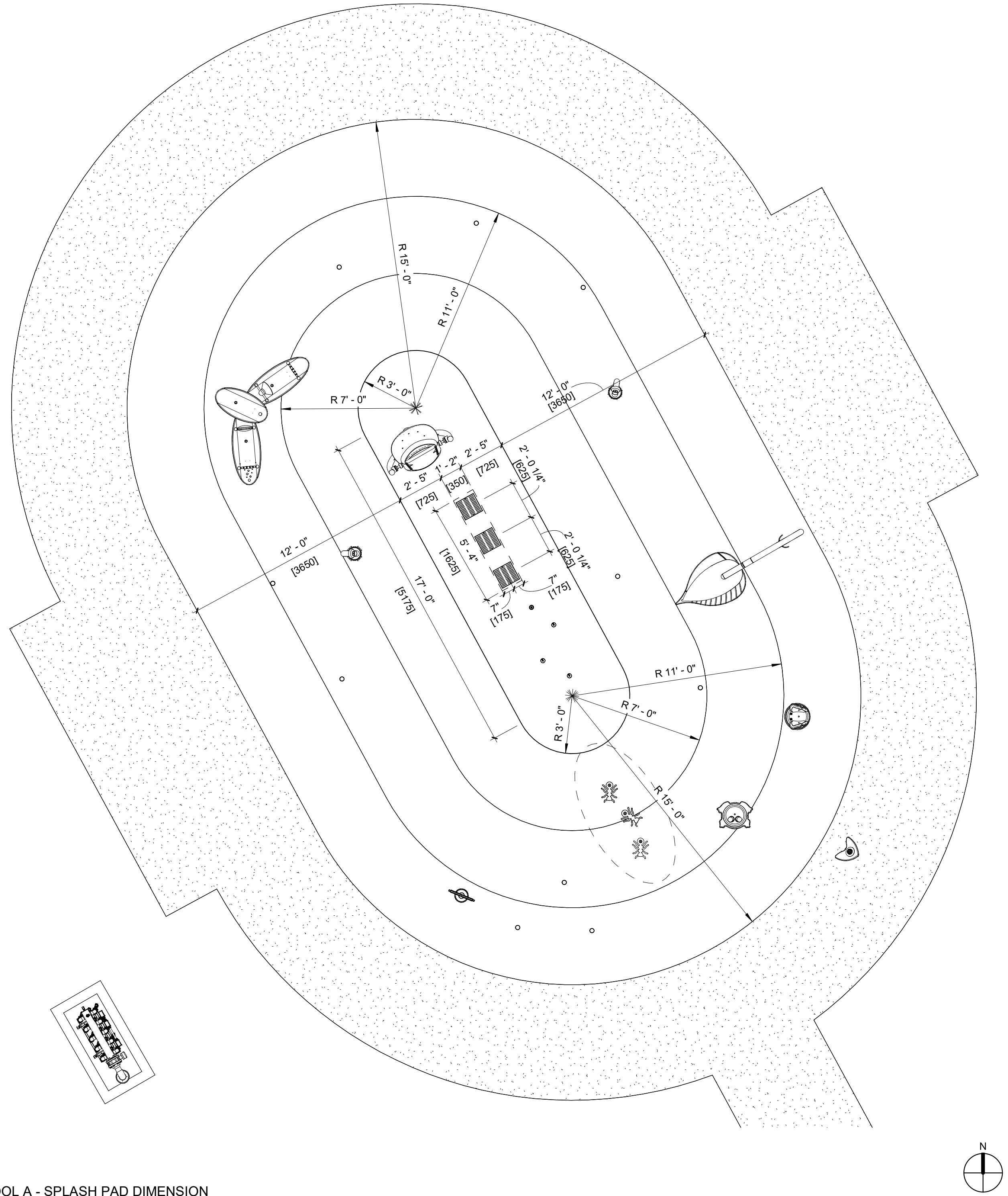
PL100



1 | OVERALL AQUATIC LAYOUT
PLAN VIEW
PL100
1/4" = 1'-0"

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2 | POOL A - SPLASH PAD DIMENSION
PLAN VIEW
1/4" = 1'-0"



SCHEDULE - BASIS OF DESIGN - POOL A					
POOL ID	EQUIPMENT ID	EQUIPMENT	QTY	MANUFACTURER	DESCRIPTION
A	01	ACTIVATOR	1	WATERPLAY	ACTIVATOR ON/OFF, POWER POST, 304 SS

SCHEDULE - WATER FEATURE BASIS OF DESIGN - POOL A						
POOL ID	FEATURE ID	FEATURE	QTY	MANUFACTURER	DESCRIPTION	GPM (ea)
A	F01	GROUND SPRAY	1	WATERPLAY	ANTS 3 GROUND SPRAY	3
A	F02	ABOVE GROUND	1	WATERPLAY	FLUTTERBY: STANDARD	1
A	F03	ABOVE GROUND	1	WATERPLAY	HOPPER 2	10
A	F04	ABOVE GROUND	1	WATERPLAY	RACCOON: STANDARD	2
A	F05	ABOVE GROUND	1	WATERPLAY	SLING SOAKER	20
A	F06	GROUND SPRAY	1	WATERPLAY	TEAM EFFECT MINI	5
A	F07	GROUND SPRAY	3	WATERPLAY	VERTICAL SPRAY: BUTTERCUP	7
A	F08	GROUND SPRAY	2	WATERPLAY	VERTICAL SPRAY: FOUNTAIN MOUNTAIN	11
A	F09	GROUND SPRAY	2	WATERPLAY	VERTICAL SPRAY: STARLET SPRAY	5
A	F10	GROUND SPRAY	3	WATERPLAY	VERTICAL SPRAY: TULIP	6
A	F11	ABOVE GROUND	1	WATERPLAY	WATERFALL 2	11
A	F12	ABOVE GROUND	1	WATERPLAY	WATERLEAF	15
A	F13	ABOVE GROUND	2	WATERPLAY	WIGGLY: STANDARD	3

NOTES:
1. SPLASH PAD FLOW SHALL BE LIMITED BY THE CONTROLLER TO 95 GPM THROUGH THE SEQUENCING OF ACTIVITIES.
2. SEE PL112 FOR WATER FEATURE DETAILS.

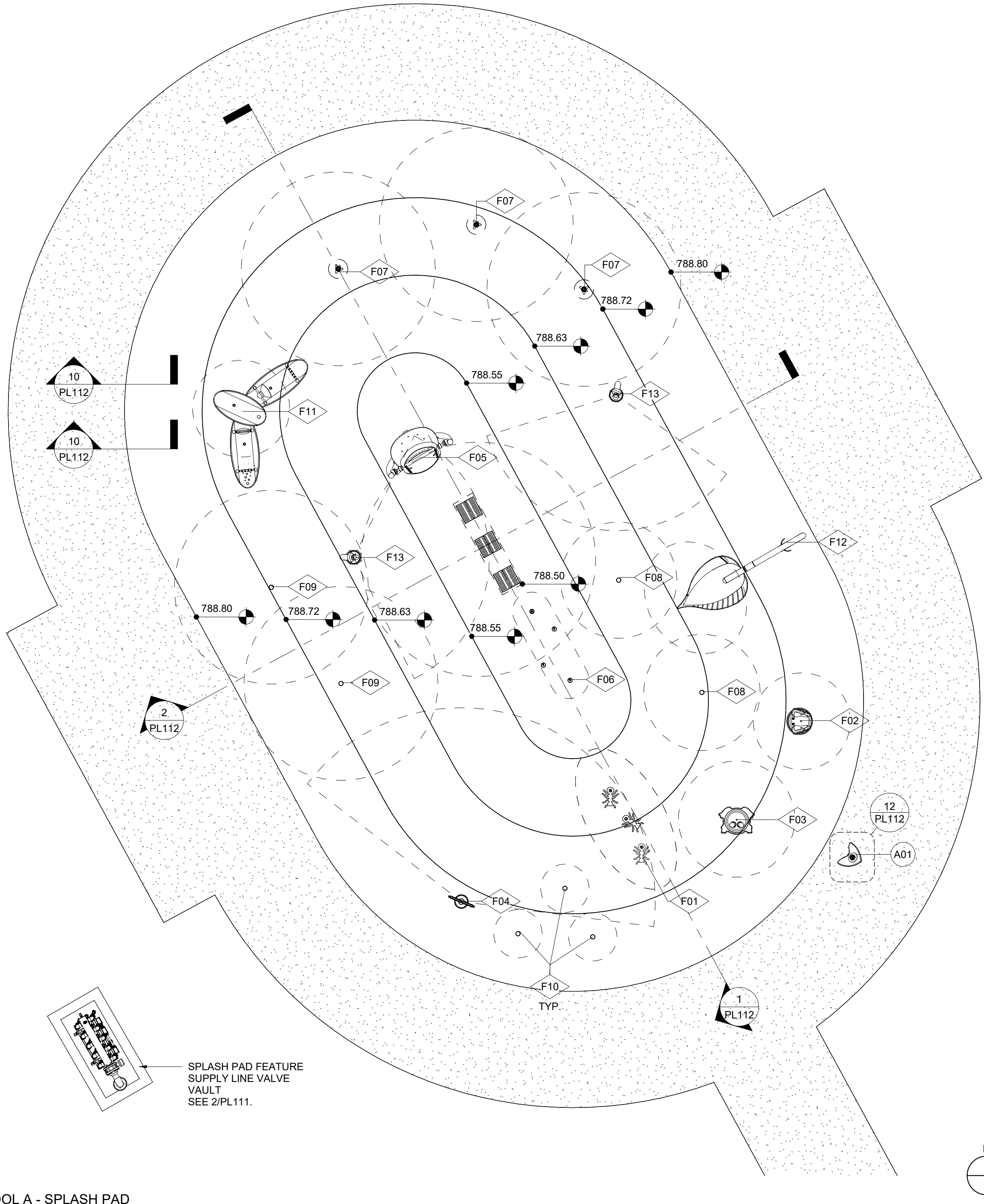
DIMENSIONING NOTES:

- ALL DIMENSIONS ARE SHOWN FROM POOL FINISH TO POOL FINISH (THIS PLAN)

POOL A-SPLASH PAD DATA		
DESCRIPTION	QTY	UNITS
PAD PERIMETER	128	FEET
PAD SURFACE AREA	1,217	SQUARE FEET



LEGEND - FINISHES & COLOR CODES - POOL A					
AREA	FINISHES		COLORS		NOTES
	FINISH ID	FINISH	COLOR ID	COLOR	
HORIZONTAL SURFACE (DRY)	LB	LIGHT BROOM	C01	AS SELECTED BY ARCHITECT	BASE-BID
HORIZONTAL SURFACE (WET)	LF	LIFE FLOOR	C01	AS SELECTED BY ARCHITECT	ADD-ALTERNATE



1 | POOL A - SPLASH PAD
PLAN VIEW
1/4" = 1'-0"

SPLASH PAD FEATURE
SUPPLY LINE VALVE
VAULT
SEE 2/PL111.

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CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
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REVISIONS

NO. DATE

PLAN INFORMATION

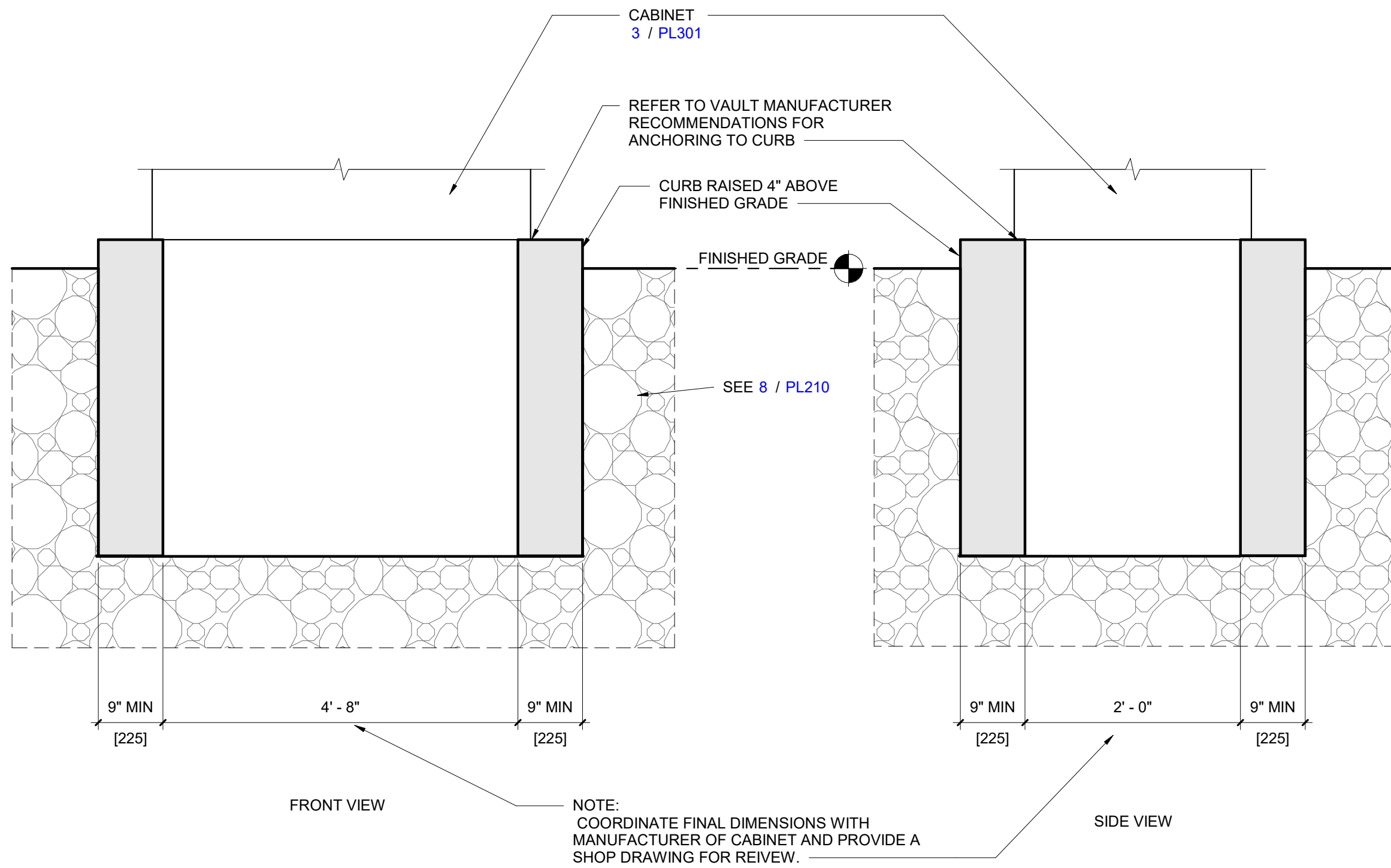
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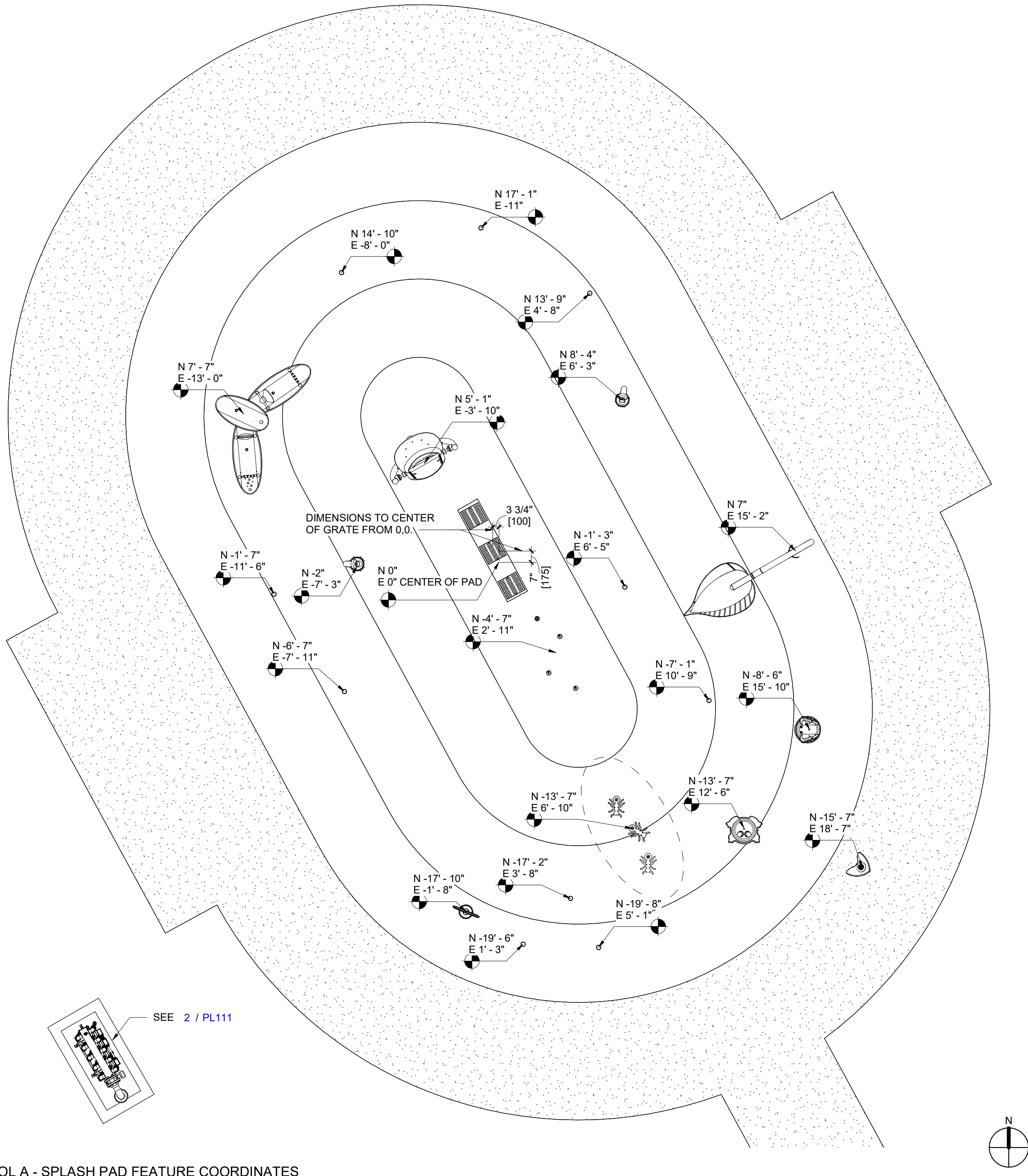
**POOL A - SPLASH PAD
PLANS**

PL110

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2 | REINFORCING - VAULT
DETAIL VIEW
NOT TO SCALE



1 | POOL A - SPLASH PAD FEATURE COORDINATES
PLAN VIEW
1/4" = 1'-0"

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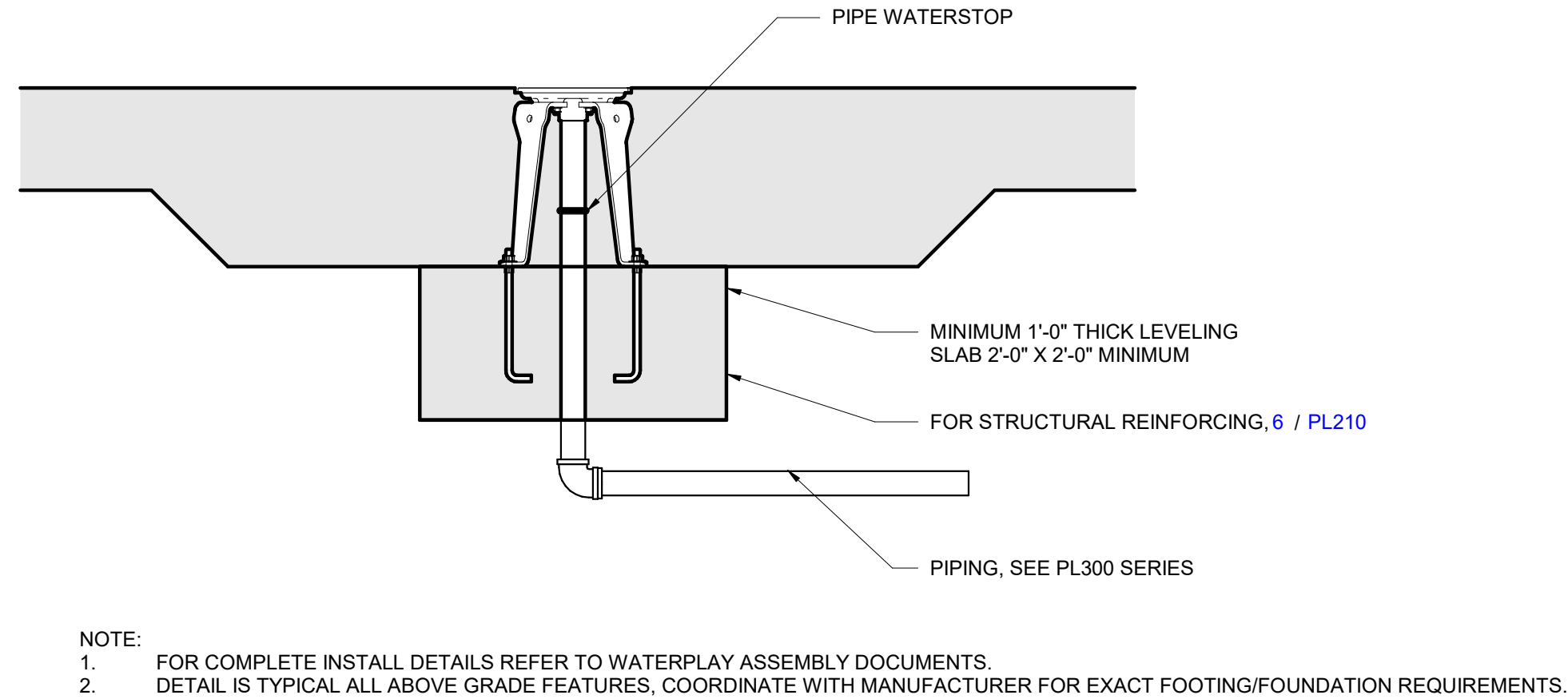
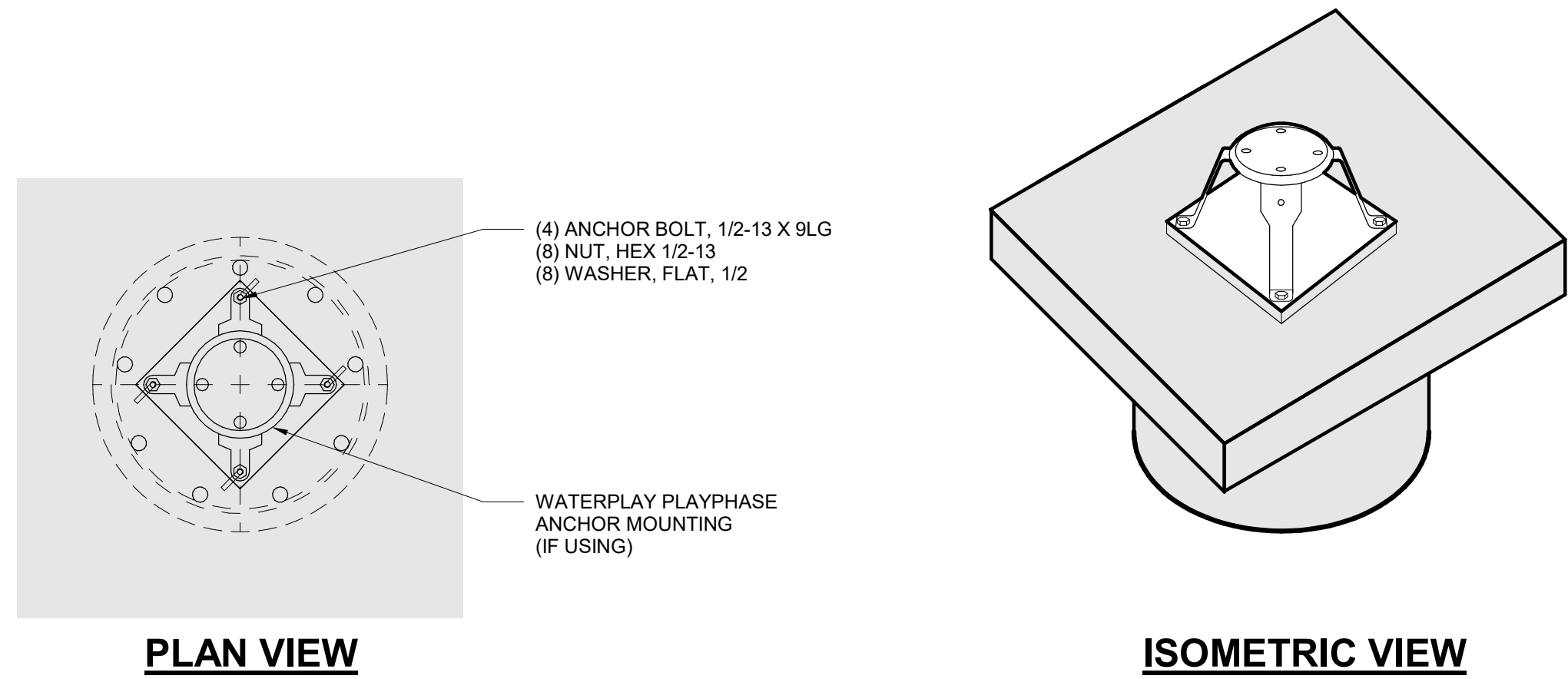
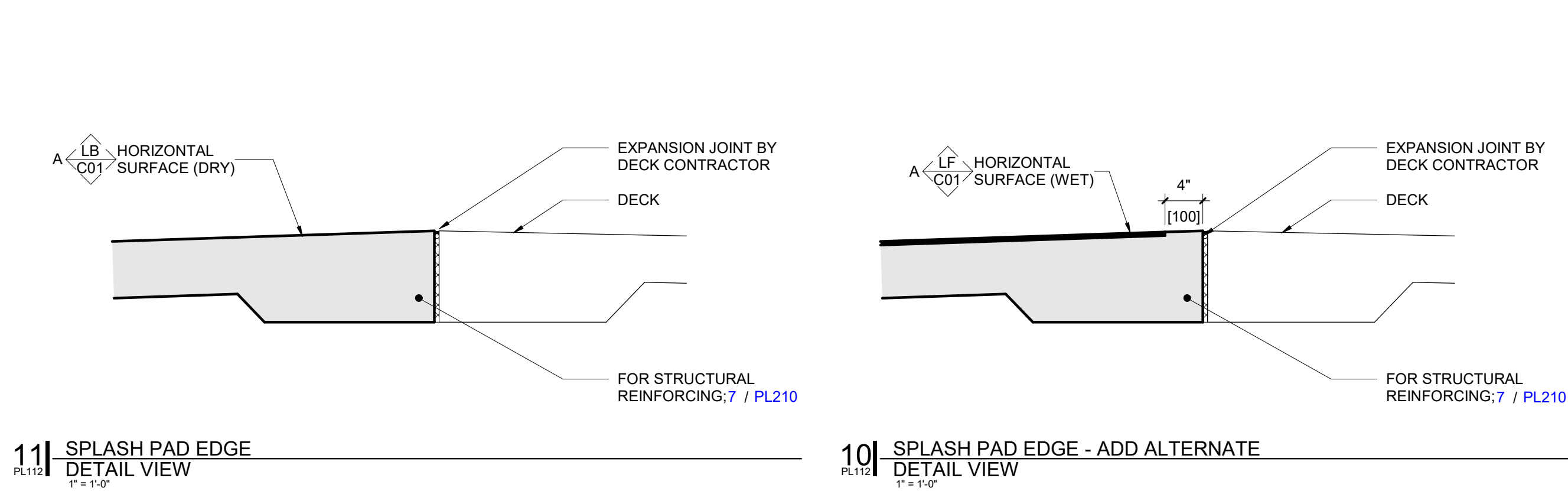
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DATE 07/14/2023

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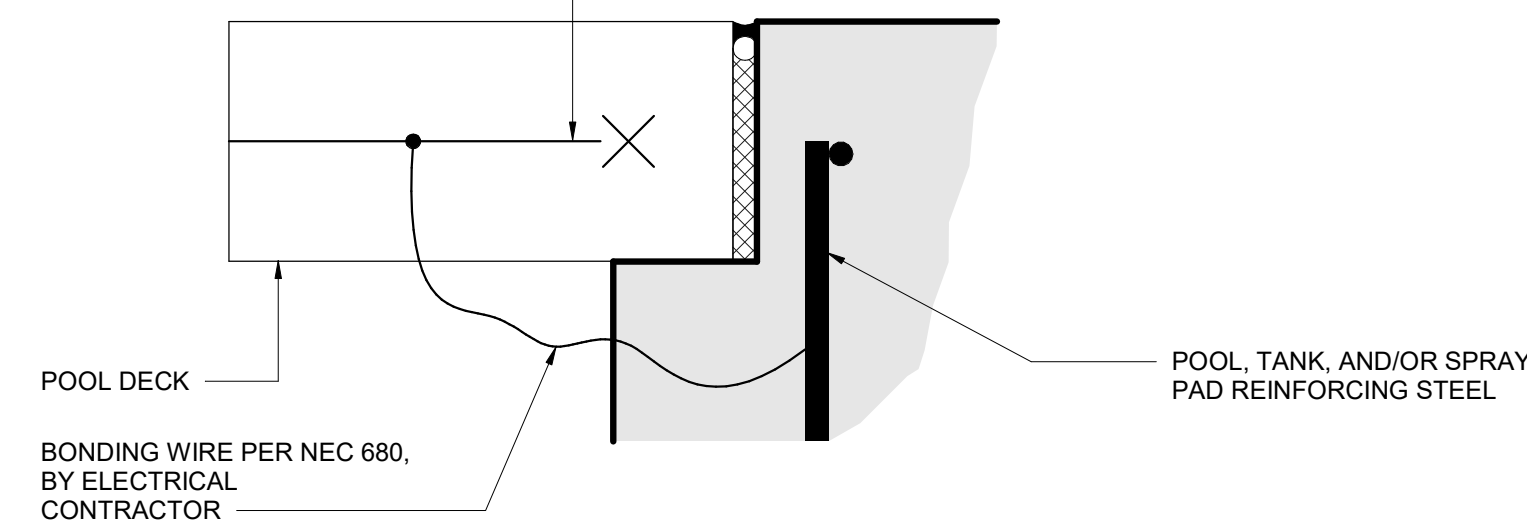
**POOL A - SPLASH PAD
FEATURE DIMENSION PLAN**

PL111

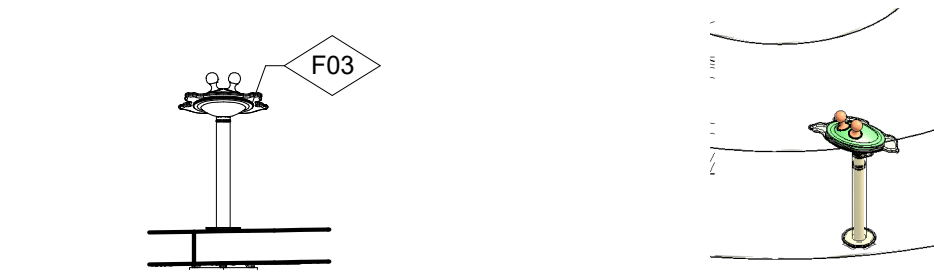
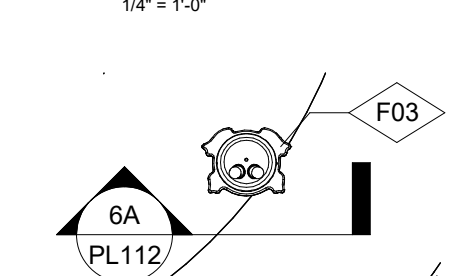
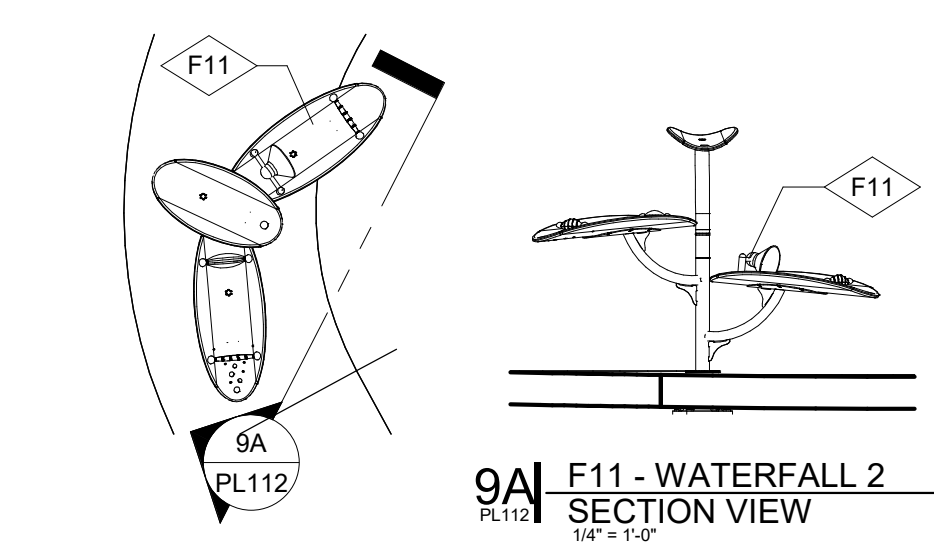
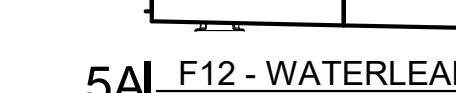
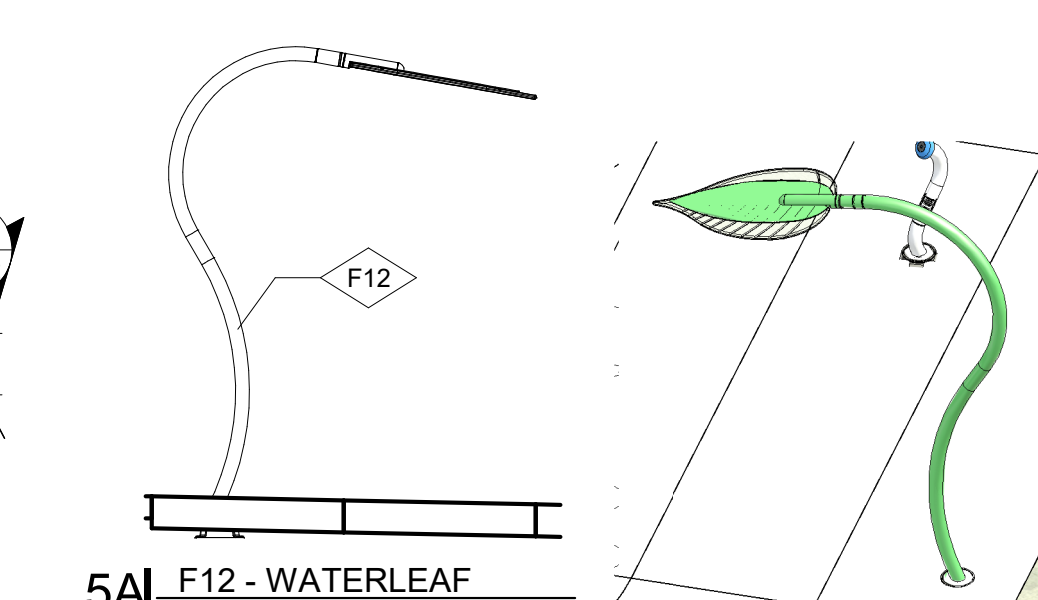
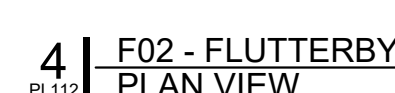
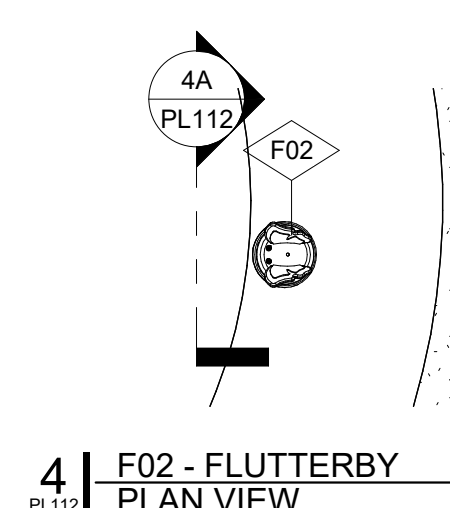
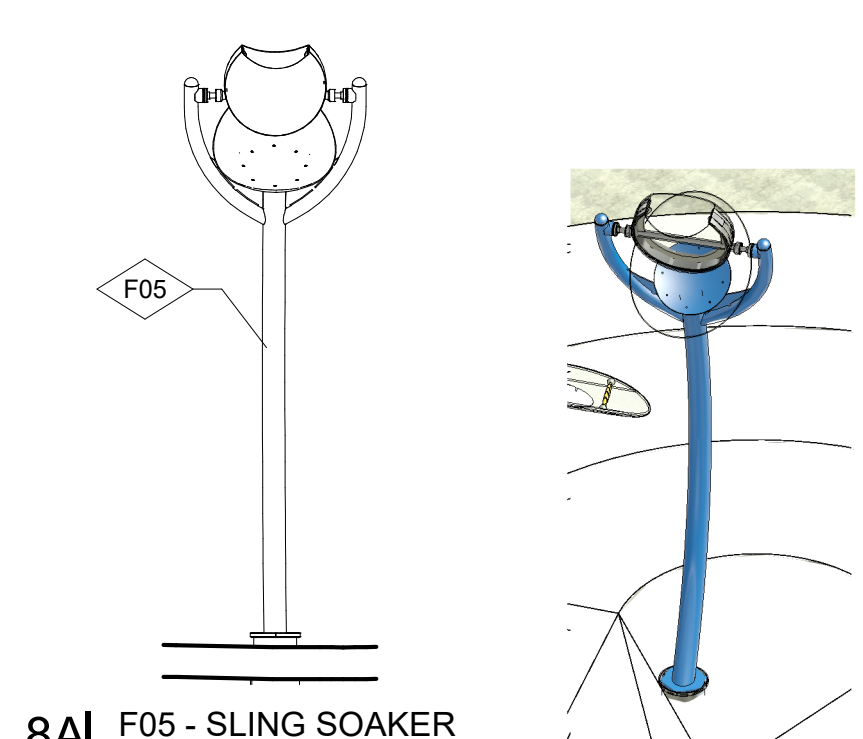
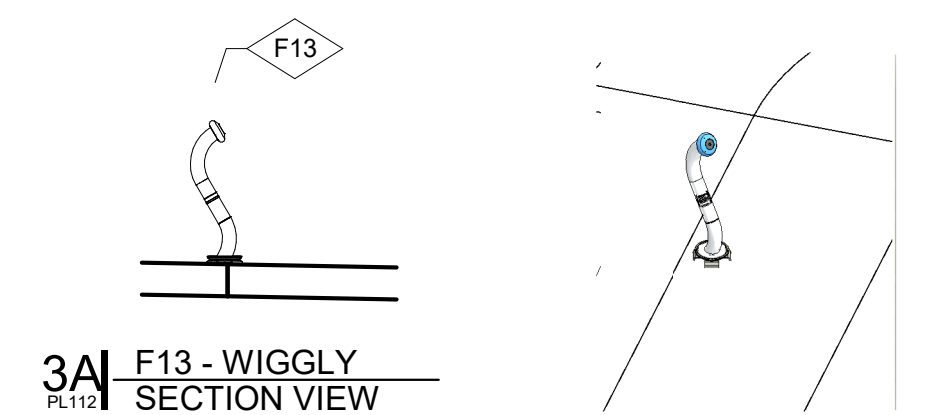
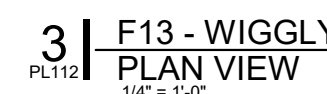
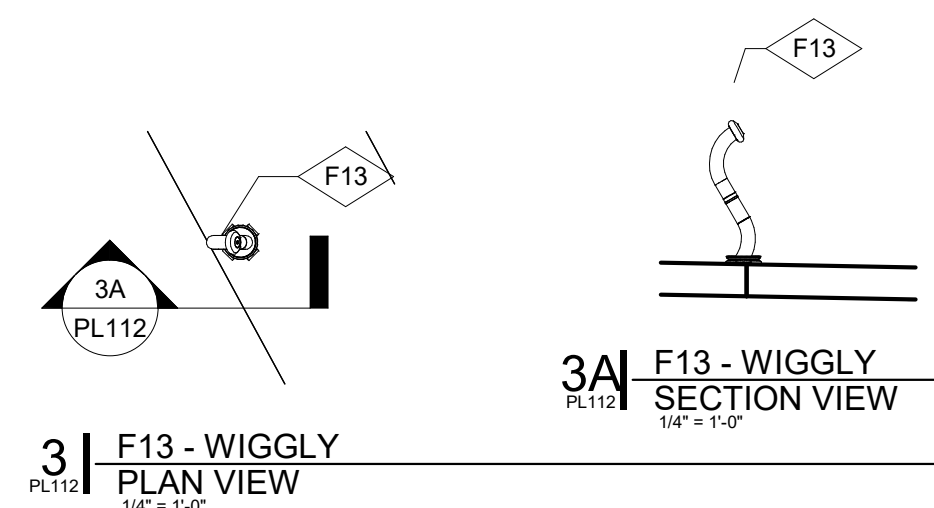
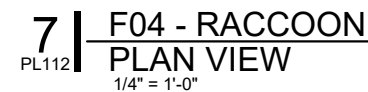
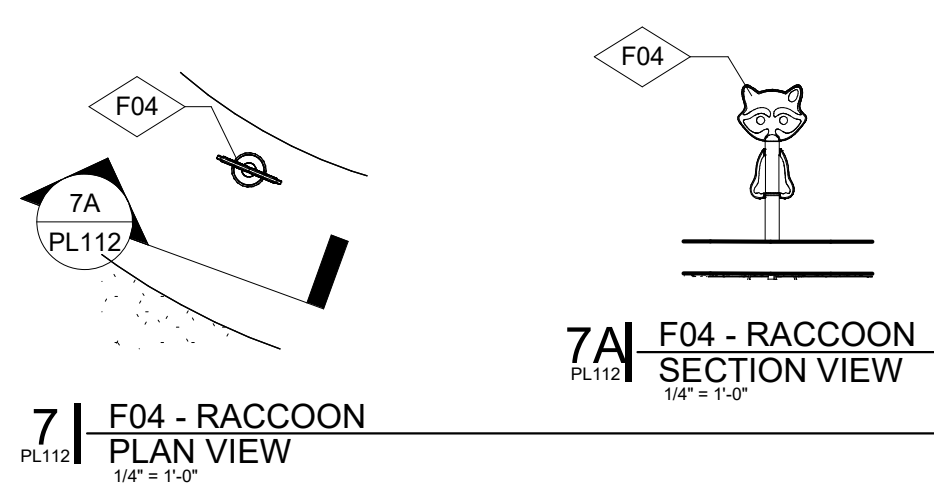
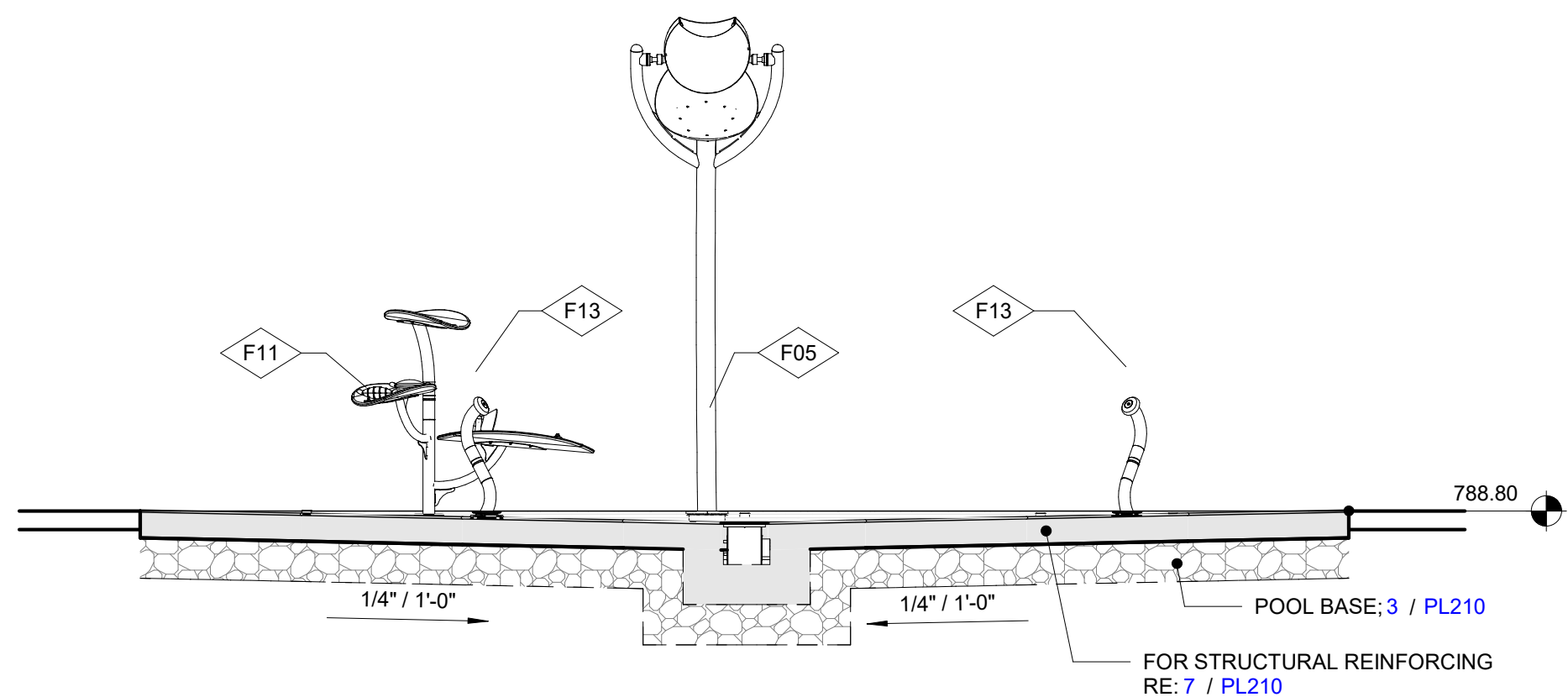
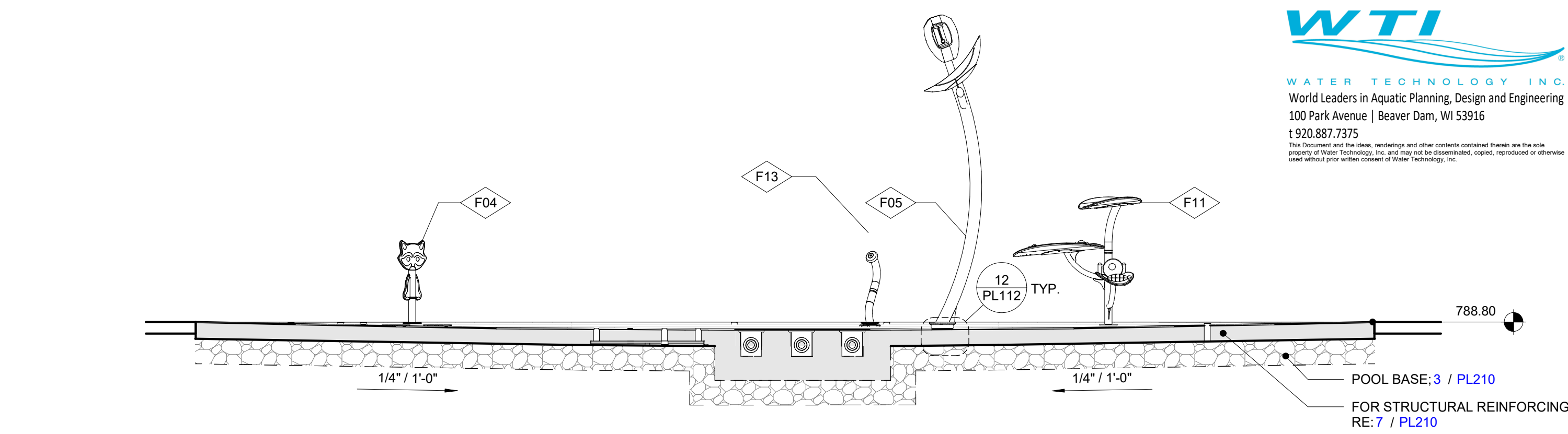
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EQUIPOTENTIAL BONDING GRID, TYPICAL AROUND EACH POOL, TANK, AND/OR SPRAY PAD BY DECK CONTRACTOR. SEE ELECTRICAL DRAWINGS AND NOTES BELOW



- NOTES:
- THIS DETAIL IS INTENDED TO ILLUSTRATE THE EQUIPOTENTIAL BONDING GRID AROUND EACH POOL, TANK, AND/OR SPRAY PAD AS REQUIRED BY NEC 680.
 - THE GRID SHALL CONFORM TO ALL NEC 680 REQUIREMENTS.
 - PER NEC 680, THE GRID SHALL:
 - COMPLETELY SURROUND THE PERIMETER OF THE POOL, TANK, AND/OR SPRAY PAD AND EXTEND 3 FEET HORIZONTALLY FROM THE INSIDE WALLS OF THE POOL, AND/OR TANK, OR PERIMETER EXPANSION JOINT AT SPRAY PADS.
 - BE ARRANGED IN A 12" X 12" (OR LESS) NETWORK OF CONDUCTORS IN A UNIFORMLY SPACED PATTERN.
 - BE BONDED TO THE POOL, TANK, AND/OR SPRAY PAD REINFORCING STEEL.
 - THIS DETAIL IS NOT INTENDED TO DETAIL THE WALLS, SLABS, OR THE DECKS. THE ABOVE DETAIL IS SCHEMATIC. SEE POOL, TANK, AND/OR SPRAY PAD SECTIONS AND DECK SECTIONS FOR ADDITIONAL CONSTRUCTION REQUIREMENTS.
 - SEE POOL, TANK, AND/OR SPRAY PAD ELECTRICAL DRAWINGS FOR ADDITIONAL BONDING & GROUNDING REQUIREMENTS.



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PLAN INFORMATION

PROJECT NO. 22402
FILENAME
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DATE 07/14/2023

SHEET

POOL A - SPLASH PAD
SECTIONS AND DETAILS

PL112

DESIGN IS IN ACCORDANCE WITH THE 2018 NORTH CAROLINA STATE BUILDING CODE AND THE 2015 INTERNATIONAL BUILDING CODE AS AMENDED TO DATE.

NOTE

STRUCTURAL DRAWINGS AND POOL DRAWINGS **MUST** BE USED IN CONJUNCTION WITH EACH OTHER. POOL DRAWINGS DICTATE ALL FINAL CONDITIONS, FEATURES, AND DIMENSIONS, INCLUDING FINISH. UNLESS OTHERWISE INDICATED, STRUCTURAL DIMENSIONS ARE CONCRETE TO CONCRETE, AND DICTATE REQUIRED THICKNESSES FOR STRUCTURAL INTEGRITY ONLY.

GEOTECHNICAL PARAMETERS

ASSUMED SOIL PARAMETERS FOR AQUATIC STRUCTURAL DESIGN

1. IF ANY OF THE CRITERIA LISTED BELOW ARE NOT MET THEN THE STRUCTURAL DESIGN SHOULD BE RE-EVALUATED BY THE AQUATIC STRUCTURAL ENGINEER.
- SOIL BEARING CAPACITY 2,500 PSF MINIMUM
AT-REST EQUIVALENT FLUID PRESSURE 55 PSF/FT MAXIMUM
SOIL GROUNDWATER TABLE ELEVATION BELOW BOTTOM OF SLAB
SETTLEMENT AND/OR PVR DOES NOT EXCEED 1/2" TOTAL MOVEMENT AND 1/4" DIFFERENTIAL MOVEMENT

STRUCTURAL AND REINFORCEMENT NOTES

STRUCTURAL NOTES

1. REINFORCEMENT AT WALL CORNERS AND WALL BENDS SHALL BE DETAILED PER THE ASSOCIATED TYPICAL DETAILS. CORNER AND BEND BARS SHALL BE THE SAME SIZE AND SPACING AS THE TYPICAL HORIZONTAL WALL REINFORCING OF THE ASSOCIATED WALLS.
2. UNLESS OTHERWISE INDICATED, ALL WALL REINFORCEMENT BARS SHALL BE CONTINUOUS AROUND CORNERS. REINFORCEMENT SHALL BE EXTENDED INTO CONNECTING WALLS. UNLESS OTHERWISE INDICATED, CONTRACTOR MAY SPLICE CONTINUOUS SLAB BARS AT LOCATIONS OF THEIR CHOOSING, EXCEPT THAT TOP BAR SPLICES SHALL BE LOCATED AT MID-SPAN AND BOTTOM BAR SPLICES SHALL BE LOCATED AT SUPPORTS. ALL REINFORCEMENT BENDS AND LAPS, UNLESS OTHERWISE INDICATED, SHALL SATISFY THE MINIMUM REQUIREMENTS FOR CLASS B SPLICES.
3. FOR REINFORCEMENT AT WALL OR FLOOR SLAB PENETRATIONS, SEE 2 / PL200
4. MINIMUM POURED CONCRETE DESIGN STRENGTH = 4500 PSI, MINIMUM SHOTCRETE DESIGN STRENGTH = 5000 PSI

REINFORCEMENT NOTES: 60KSI, A615, DEFORMED BARS

1. REINFORCEMENT SHALL BE DETAILED AND PLACED IN ACCORDANCE WITH ACI "MANUAL OF CONCRETE PRACTICE", LATEST EDITION, UNLESS OTHERWISE NOTED.
2. ALL LAPS SHALL BE CLASS "B" PER ACI 318 UNLESS OTHERWISE NOTES ON THE DESIGN DRAWINGS OR UNLESS THE DETAILER TAKES SPECIAL CARE TO PROVIDE STAGGERED LAPS. USE TOP BAR LAP LENGTHS FOR ALL HORIZONTAL WALL BARS AND FOR TOP BARS IN SLABS AND BEAMS OVER 14" DEEP
3. LAP LENGTH SHALL BE SPECIFICALLY NOTED ON PLACING DRAWINGS WHERE MORE THAN ONE BAR MAKES UP A CONTINUOUS STRING
4. TIE POOL REINFORCING STEEL WITH 18-GAUGE ANNEALED WIRE AS SPECIFIED IN THE CRSI 63 RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS. ALL TIE WIRES SHALL BE "MADE TIGHT" FOR ELECTRICAL BONDING PURPOSES, AS REQUIRED 13 / PL112.
5. ALL HOOKS SHALL BE STANDARD HOOKS UNLESS NOTED OTHERWISE.

REINFORCING STEEL MINIMUM CLEAR COVER REQUIREMENTS

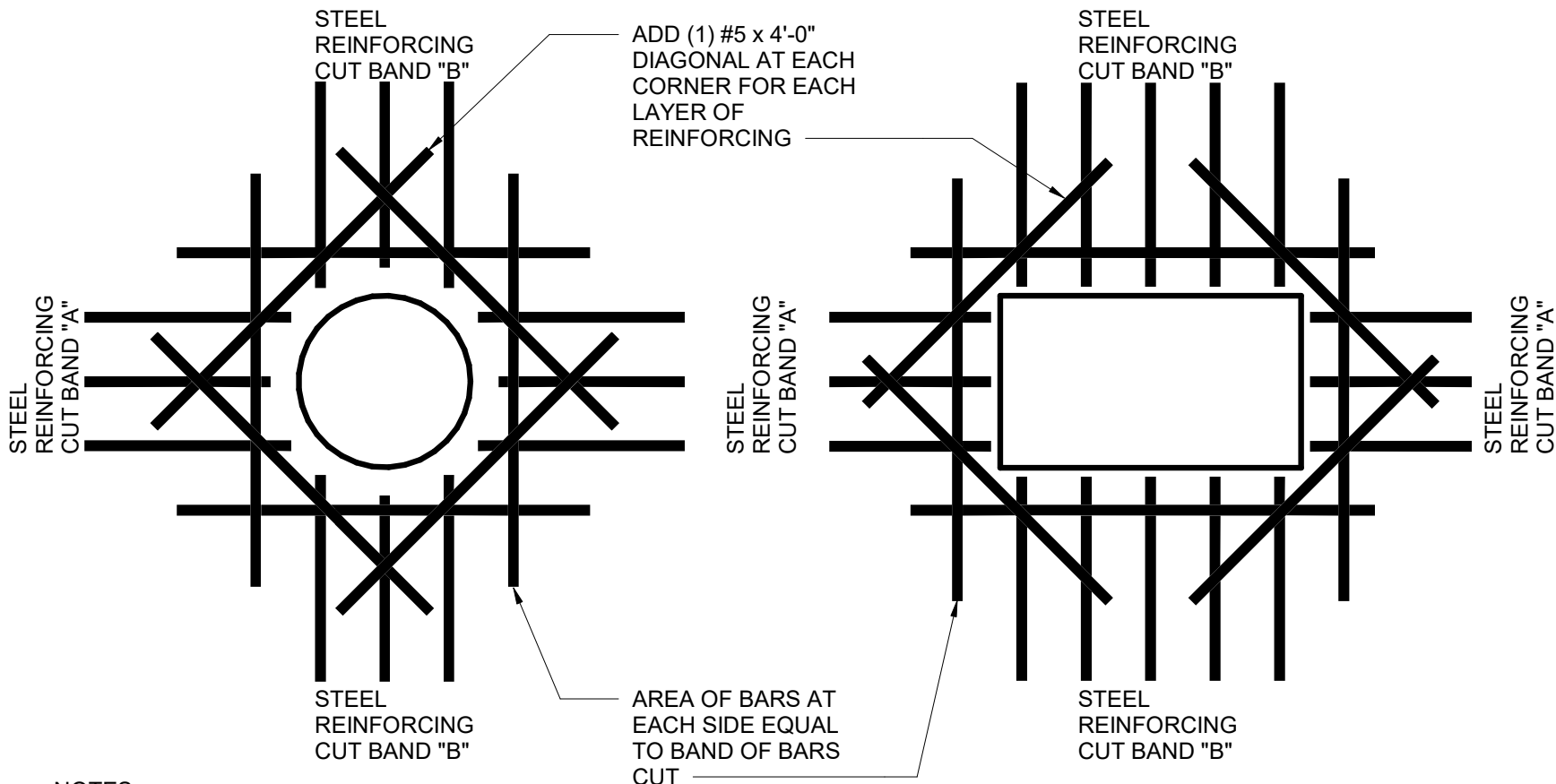
COORDINATE WITH REINFORCEMENT STEEL PLACING REQUIREMENTS

3" FOR CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH
2" TYPICAL ALL ELSE, UNLESS NOTED OTHERWISE ON DETAILS

REINFORCEMENT CLASS "B" LAP LENGTHS

BASED UPON 4500 PSI CONCRETE AND 60 KSI REINFORCING STEEL

TYPICAL STANDARD DETAILS



- NOTES:
1. TYPICAL FOR ALL OPENINGS IN CONCRETE WALLS AND SLABS INCLUDING DRAINS UNLESS INDICATED OTHERWISE ON PLANS.
2. DO NOT WELD REINFORCEMENT TO PIPE SLEEVES AND INSERTS.
3. ALL OPENINGS THROUGH WATERTIGHT TANK REQUIRE WATERSTOPS.
4. PROVIDE MIN LAP AS NOTED OR SHOWN ON PLANS (TYP)

2 REINFORCING - REINFORCEMENT AT OPENINGS

PL200
DETAIL VIEW
NTS

SCHEDULE - STRUCTURAL REQUIREMENTS

Detail	Pool ID	Range ID	APPLICABLE STRUCTURAL WALL HEIGHT RANGE (FOR PLAN REFERENCE ONLY)	FLOOR		
				D		E
				Thickness	# of Mats of Reinforcement	Reinforcement Bedding Course Thickness

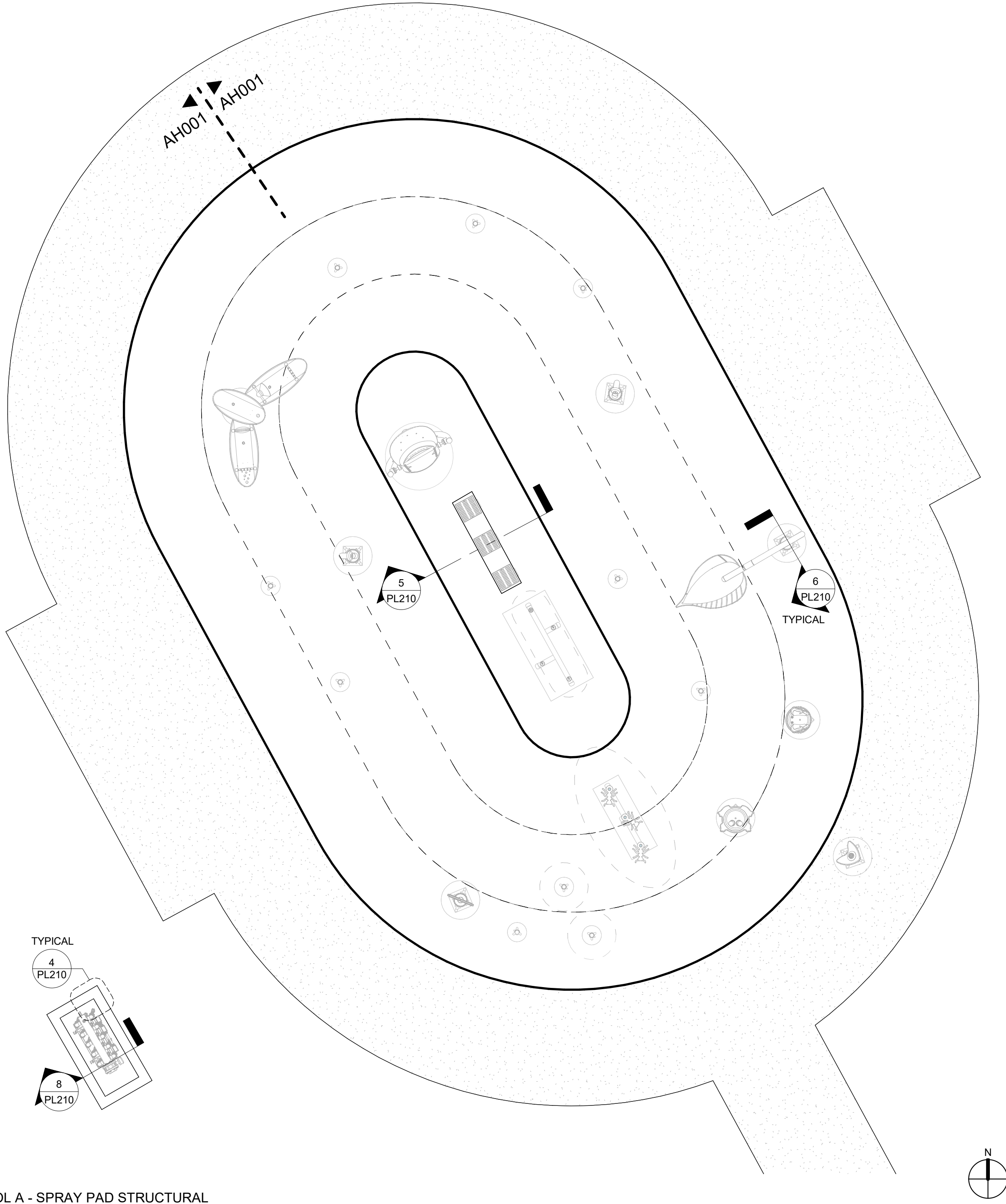
A	7 / PL210	A	H001	0'-8"	1	#4@8" OC EW	1'-0" MIN
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SCHEDULE NOTES

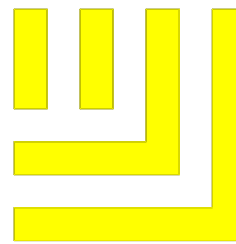
* WHEN A SECTION CONTAINS ONLY ONE MAT OF REINFORCING, THE REINFORCING STEEL SHALL BE CENTERED IN THE SECTION

SCHEDULE ABBREVIATIONS:

OC ON CENTER
EF EACH FACE
FF FRONT FACE
BF BACK FACE
EW EACH WAY



1 POOL A - SPRAY PAD STRUCTURAL
PLAN VIEW
1/4" = 1'-0"



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PARK

SPLASH PAD

CONSTRUCTION DRAWINGS

16131 OLD STATESVILLE RD

HUNTERSVILLE, NC 28078



GRAEF-USA, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2945

REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME
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DATE 07/12/2023

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STRUCTURAL NOTES,
PLAN(S) AND SCHEDULE

PL200



Project Number: 2023-2000.28
Phone 920 / 592 9440

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

REVISIONS

NO. DATE

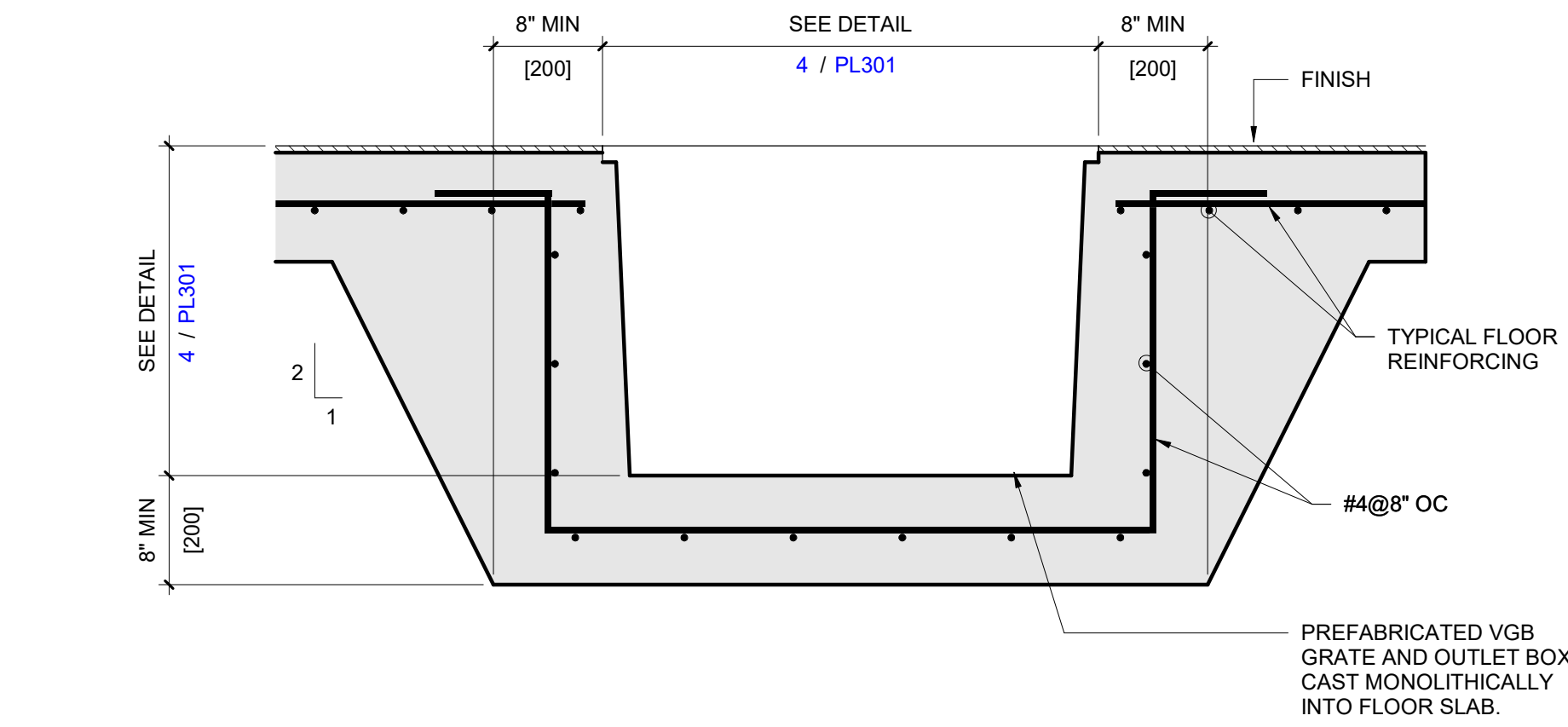
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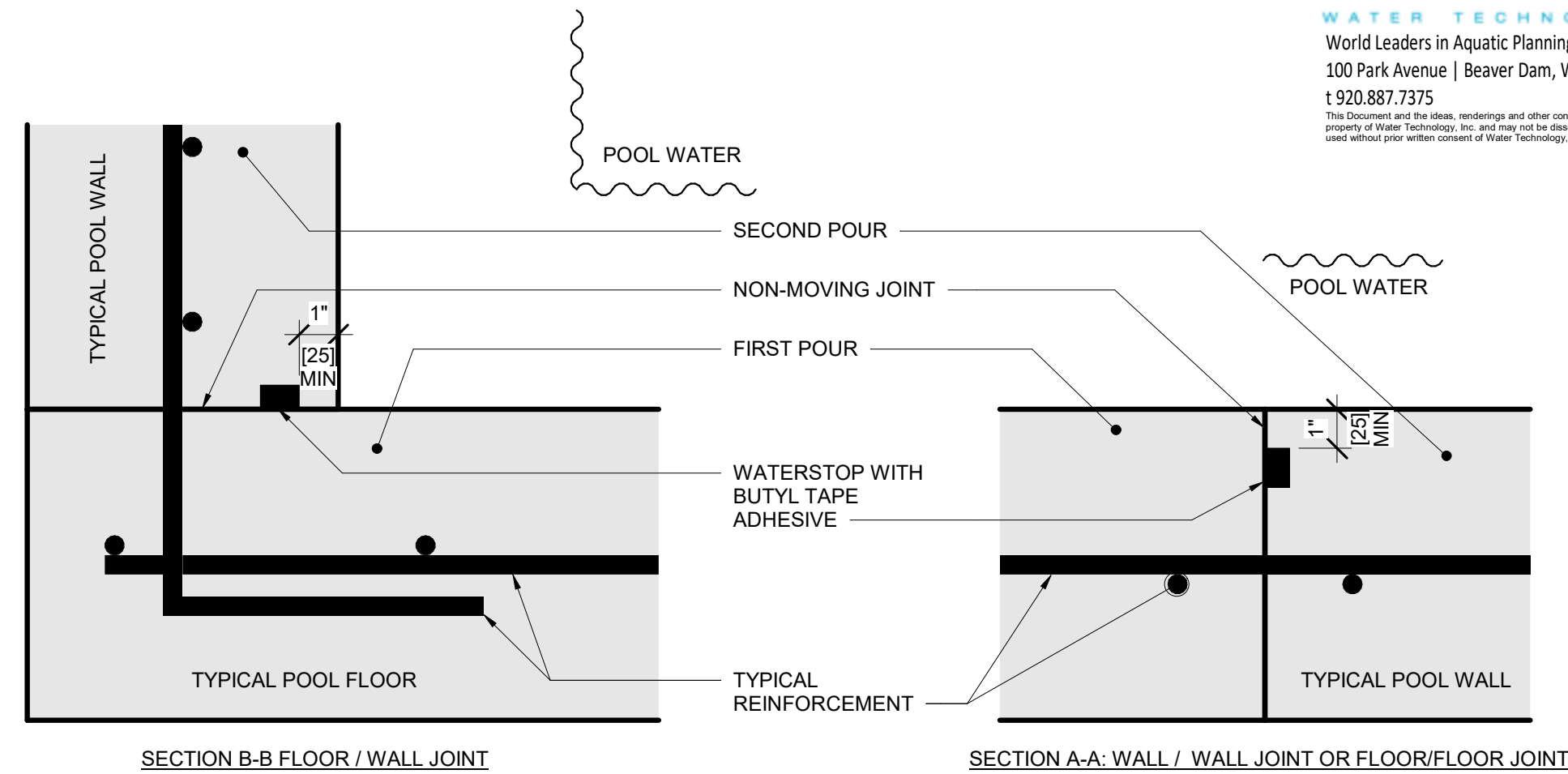
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STRUCTURAL DETAILS

PL210

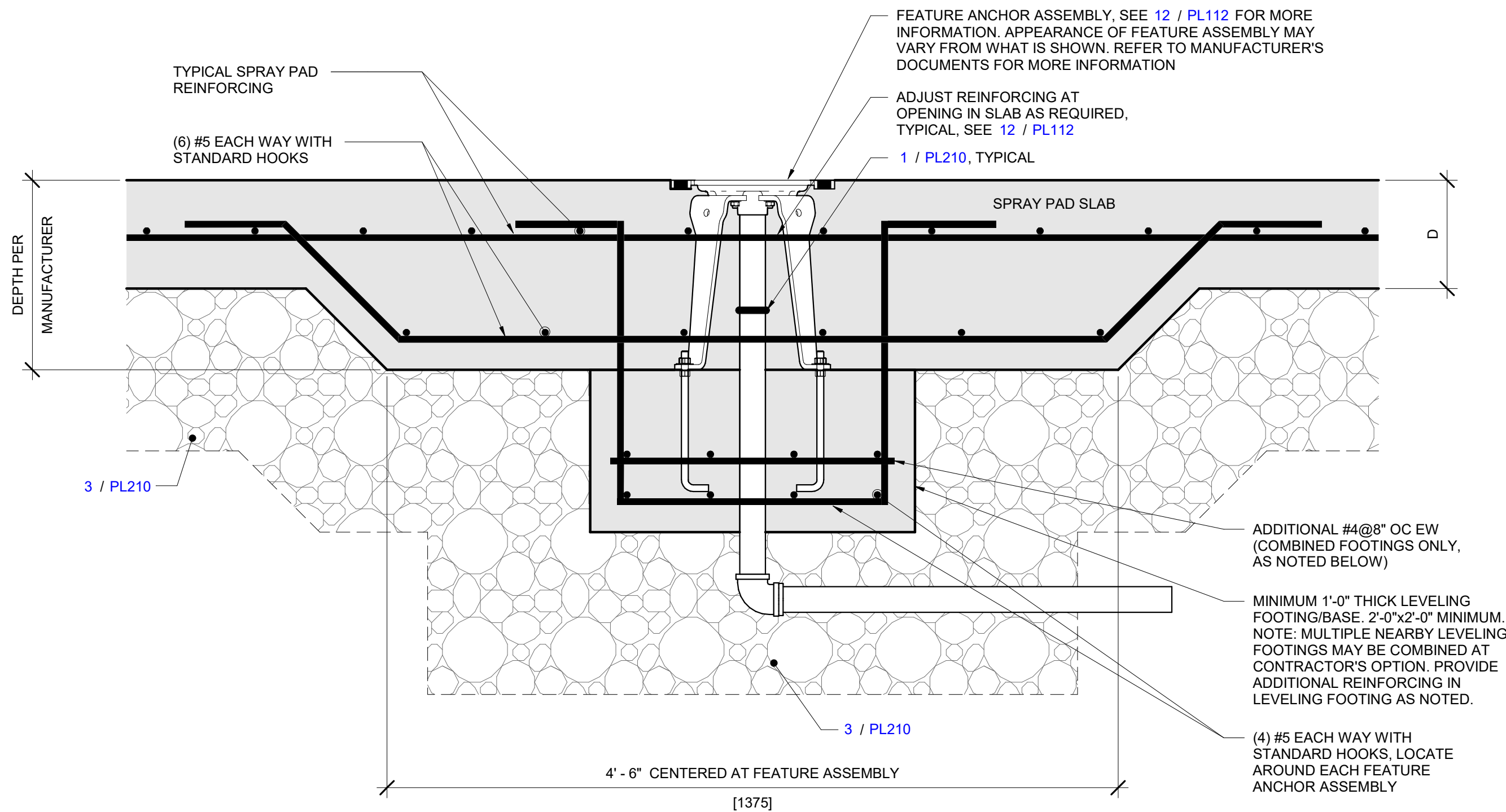


5 | REINFORCING - FLOOR OUTLET
DETAIL VIEW
NOT TO SCALE

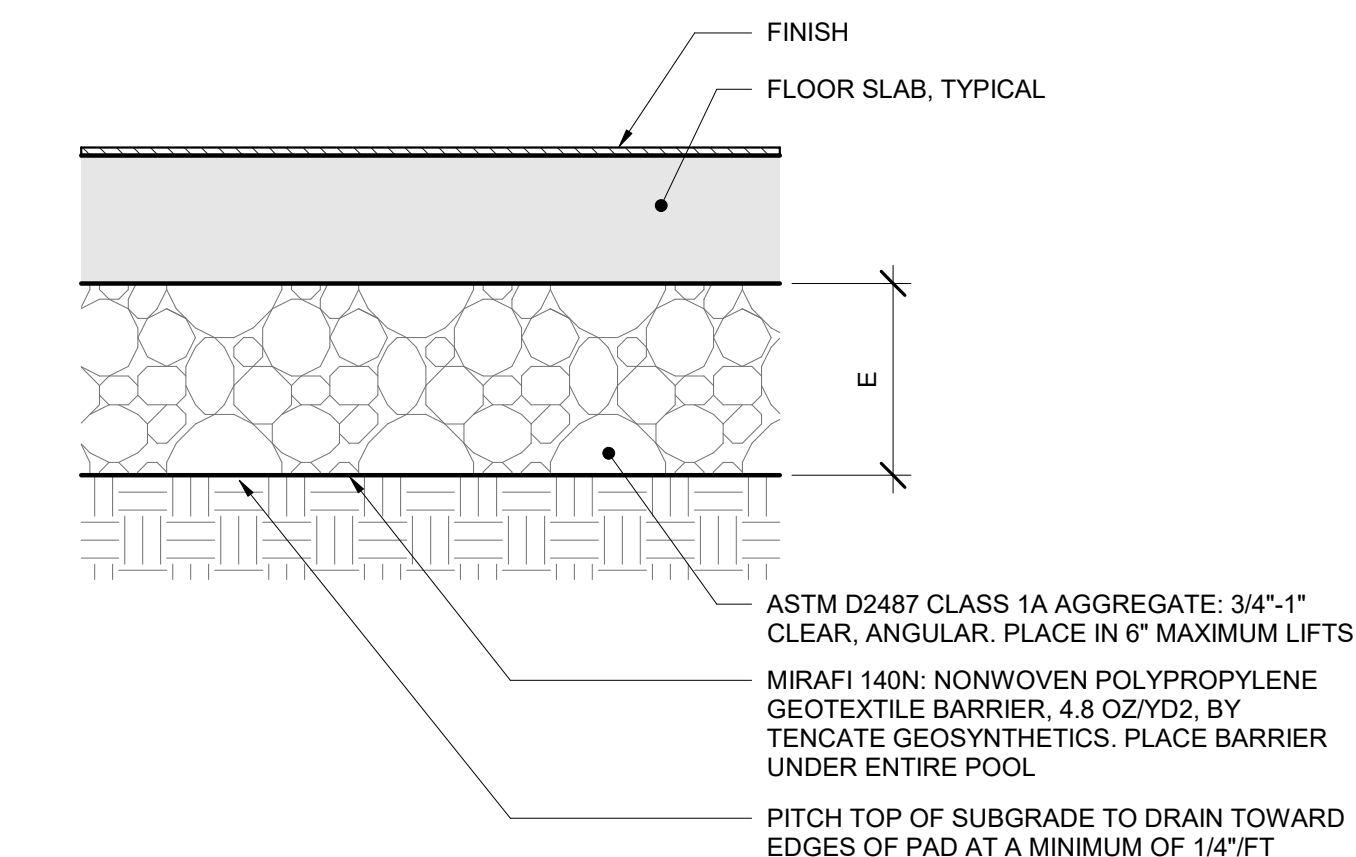


- NOTE:**
1. STRUCTURAL DETAILS.
 2. BASIS OF DESIGN IS TYPE KBA-1510FP WATERSTOP BY ADEKA. SUBSTITUTIONS MUST BE APPROVED BY ENGINEER. NOTE THAT CLEARANCES FOR SUBSTITUTIONS MAY DIFFER. REFER TO MANUFACTURER REQUIREMENTS.
 3. INSTALL WATERSTOP ON WET SIDE(S) OF REINFORCEMENT.
 4. DIMENSION ABOVE IS A MIN FOR CONCRETE COVERAGE AND DOES NOT INCLUDE THE POOL FINISH. PROVIDE ADDITIONAL CONCRETE COVERAGE IF POSSIBLE.
 5. PROTECT WATERSTOP FROM WATER, DIRT, DEBRIS, AND DAMAGE PRIOR TO COVERING WITH CONCRETE.
 6. SEE SPECIFICATION SECTION 131120 FOR ADDITIONAL WATERSTOP REQUIREMENTS.

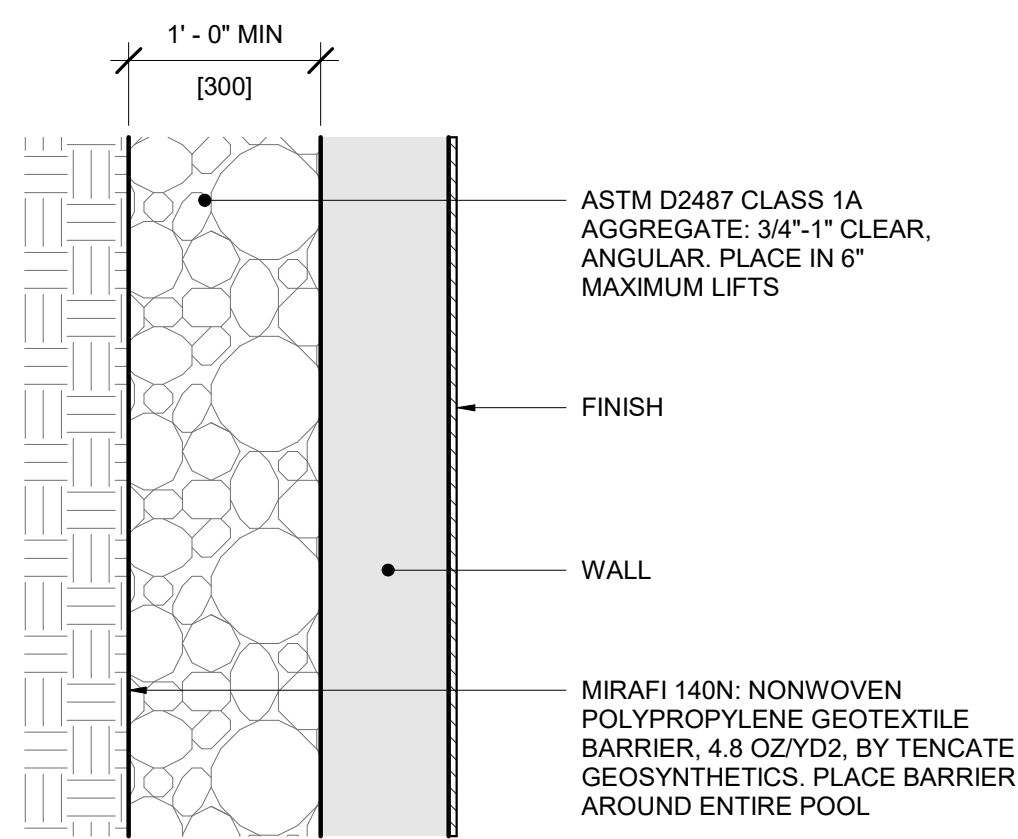
1 | WATERSTOP - COMPRESSIBLE NON-MOVING JOINT - ADEKA
DETAIL VIEW
NOT TO SCALE



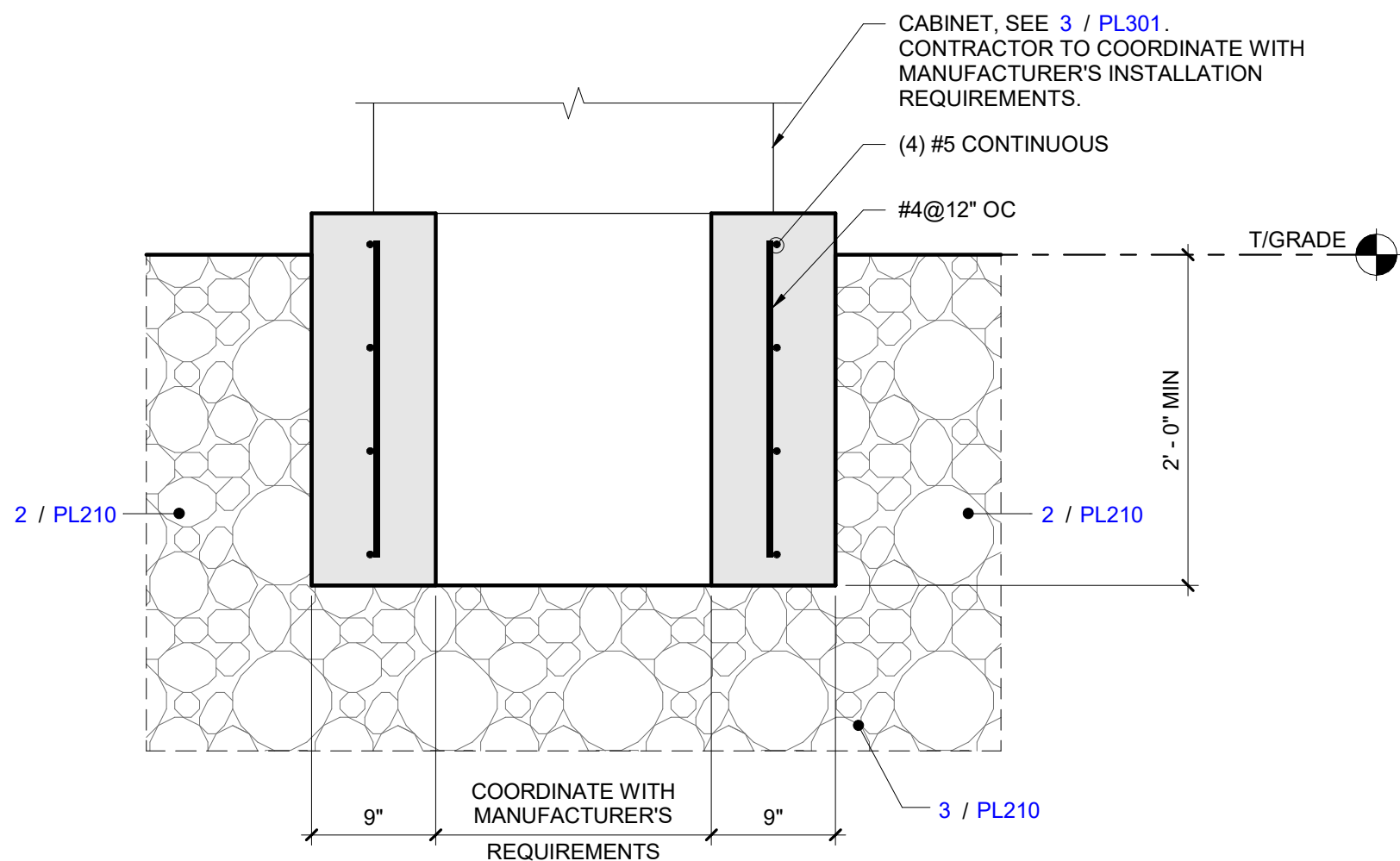
6 | REINFORCING - ACTIVITY INSTALLATION LEVELING FOOTING/BASE
DETAIL VIEW
NOT TO SCALE



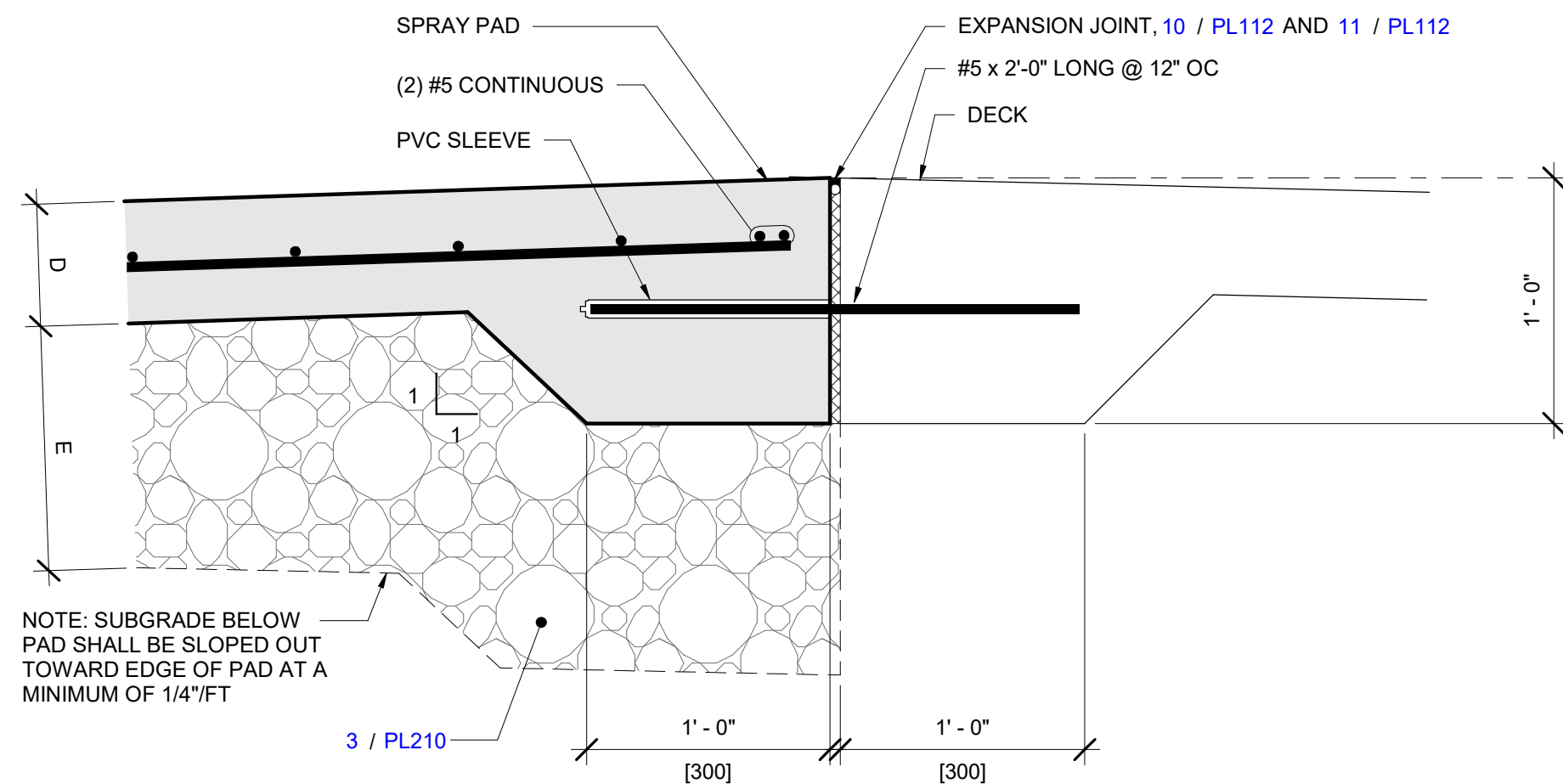
3 | SLAB SUB BASE
DETAIL VIEW
NOT TO SCALE



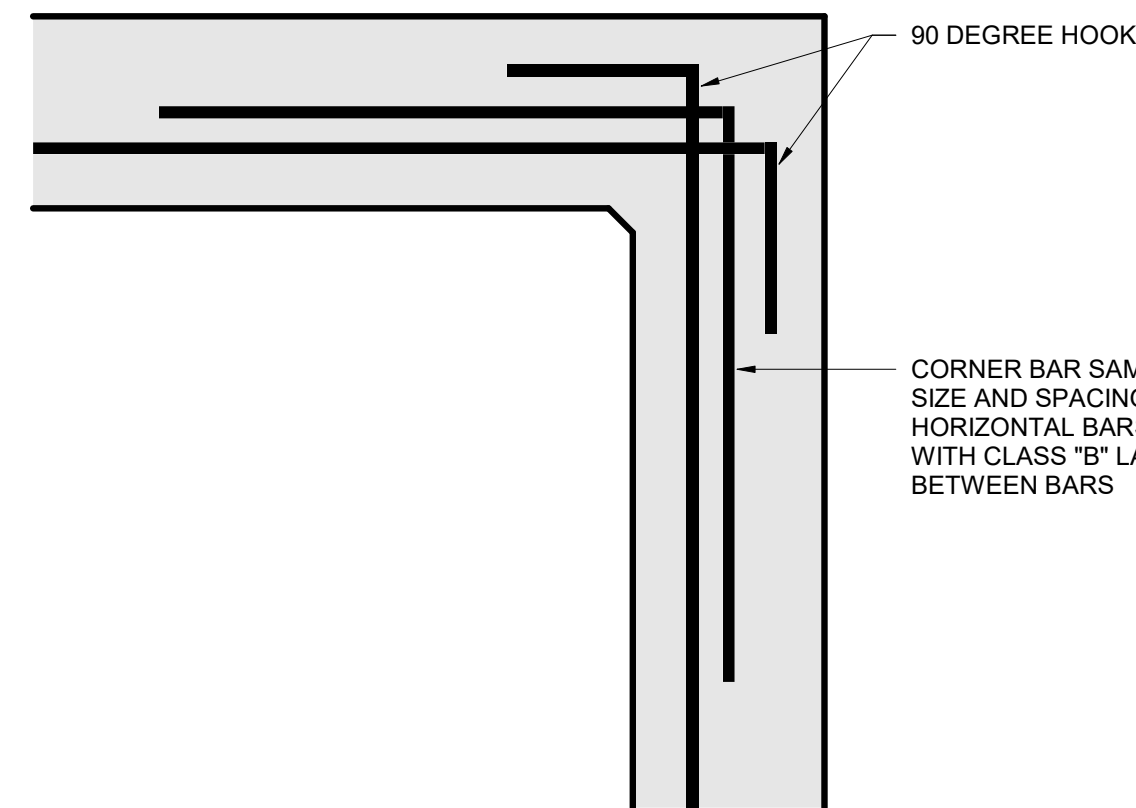
2 | WALL BACKFILL
DETAIL VIEW
NOT TO SCALE



8 | REINFORCING - VAULT
DETAIL VIEW
NOT TO SCALE



7 | REINFORCING - SPRAY PAD EDGE
DETAIL VIEW
NOT TO SCALE



4 | REINFORCING - SINGLE MAT REINFORCING AT CORNER
DETAIL VIEW
NOT TO SCALE

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1 PIPING PLAN
PLAN VIEW
3/8" = 1'-0"

MANIFOLD SHOWN WITHOUT
CABINET FOR CLARITY SEE
2/PL300, 3/PL301

SEE CIVIL DRAWINGS FOR
CONTINUATION OF 2"
POTABLE WATER PIPE.

FOR CONTINUATION TO
SANITARY SEWER SEE
CIVIL DRAWINGS

PIPING LEGEND	
PIPE DESCRIPTION	PIPE COLOR
ACTIVITY SUPPLY:	
INLET SUPPLY:	
GRAVITY:	

THE FOLLOWING NOTES APPLY TO SPLASHPAD PIPING PLANS:

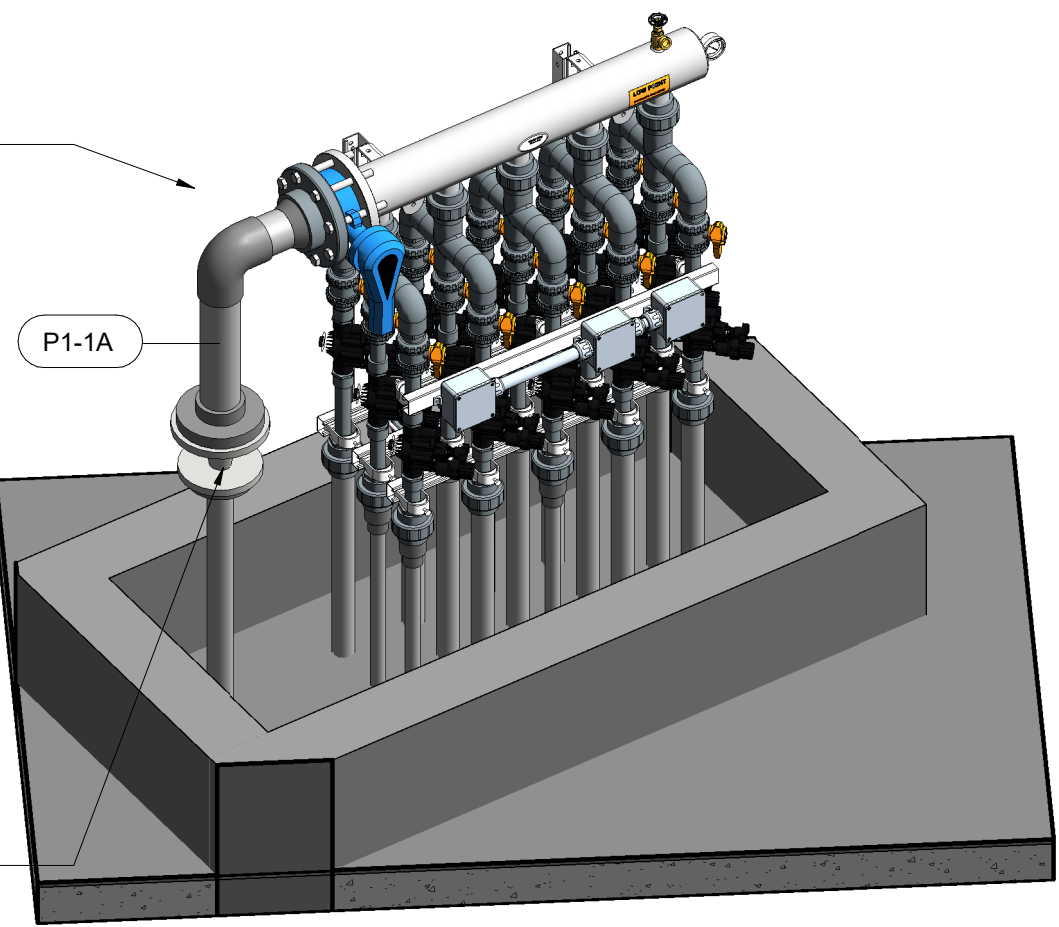
- THE PIPING LAYOUTS ON THIS DRAWING ARE SCHEMATIC AND FOR REFERENCE ONLY. PIPING AS SHOWN AS SPREAD OUT FOR CLARITY. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING FINAL PIPE ROUTING AND ELEVATIONS.
- REDUCE THE USE OF FITTINGS AND LONG PIPE RUNS TO MINIMIZE HEAD LOSS IN THE SYSTEM.
- ALL PIPING SHALL BE INSTALLED IN A PIPE TRENCH WITH BEDDING AND COVER MATERIALS PER SPECIFICATIONS. PIPING MAY BE STACKED IN THE PIPE TRENCH.
- ARROWS DENOTE DIRECTION OF FLOW.
- REFER TO ALL DISCIPLINES DOCUMENTATION AND COORDINATE ALL PIPING AND EMBEDMENTS WITH AFFECTED TRADES.
- ALL GRAVITY PIPING SHALL BE INSTALLED AT A MINIMUM SLOPE OF 1" DROP PER 10' LENGTH. ALL OUTDOOR PIPING SHALL BE INSTALLED WITH A SLOPE TO ALLOW COMPLETE DRAINING OR THE ABILITY TO BLOW OUT THE LINES AND ISOLATE THEM FOR WINTERIZATION. PROVIDE WINTERIZING/DRAINING INSTRUCTIONS AND SCHEMATICS TO OWNER.
- CONTRACTOR SHALL USE SWING JOINTS OR OTHER MEANS AND METHODS AS REQUIRED TO PROVIDE FEATURES FLUSH AND PLUMB AND AS REQUIRED FOR WINTERIZATION.

POOL A - SPLASH PAD PIPE SCHEDULE

PIPE ID	TYPE	NPS (in)	FLOW (gpm)	VELOCITY (fps)	DESCRIPTION
P1-1A	PVC SCH 80	3	95	4.7	SPLASH PAD SUPPLY
P1-10A	PVC SCH 80	1.5	2	0.4	RACCOON SUPPLY
P1-20A	PVC SCH 80	1.5	18	3.4	TULIP SUPPLY
P1-21A	PVC SCH 80	1.5	9	1.7	TULIP SUPPLY
P1-22A	PVC SCH 80	1.5	6	1.1	TYPICAL TULIP CONNECTION
P1-30A	PVC SCH 80	1.5	3	0.6	ANTS SUPPLY
P1-40A	PVC SCH 80	1.5	10	1.9	HOPPER SUPPLY
P1-50A	PVC SCH 80	1.5	1	0.2	FLUTTERBY SUPPLY
P1-60A	PVC SCH 80	1.5	15	2.8	WATERLEAF SUPPLY
P1-70A	PVC SCH 80	1.5	22	4.1	FOUNTAIN MOUNTAIN SUPPLY
P1-71A	PVC SCH 80	1.5	11	2.1	TYPICAL FOUNTAIN MOUNTAIN CONNECTION
P1-80A	PVC SCH 80	1.5	3	0.6	WIGGLY SUPPLY
P1-90A	PVC SCH 80	1.5	5	0.9	TEAM EFFECT SUPPLY
P1-100A	PVC SCH 80	1.5	20	3.7	SLING SOAKER SUPPLY
P1-110A	PVC SCH 80	1.5	21	3.9	BUTTERCUP SUPPLY
P1-111A	PVC SCH 80	1.5	14	2.6	BUTTERCUP SUPPLY
P1-112A	PVC SCH 80	1.5	7	1.3	TYPICAL BUTTERCUP CONNECTION
P1-120A	PVC SCH 80	1.5	3	0.6	WIGGLY SUPPLY
P1-130A	PVC SCH 80	1.5	11	2.1	WATERFALL SUPPLY
P1-140A	PVC SCH 80	1.5	10	1.9	STARLET SPRAY SUPPLY
P1-141A	PVC SCH 80	1.5	5	0.9	TYPICAL STARLET SPRAY CONNECTION
G-1A	PVC SCH 40	6	95	1.1	DRAIN PIPING

NOTE: SPLASH PAD FLOW SHALL BE LIMITED BY THE CONTROLLER TO 95 GPM THROUGH THE SEQUENCING OF ACTIVITIES.

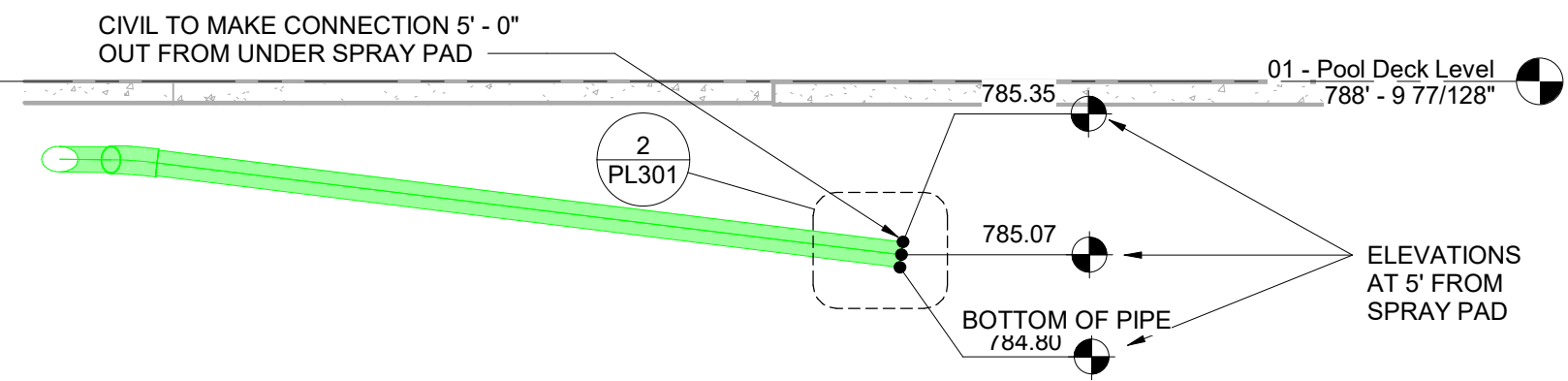
CABINET ENCLOSURE
NOT SHOWN FOR
CLARITY. SEE 3/PL301.



2 MANIFOLD DETAIL
DETAIL VIEW
NOT TO SCALE

ENLARGE PIPING FROM 2"
POTABLE WATER TO 3"
WITH PVC CONCENTRIC
REDUCER

CIVIL TO MAKE CONNECTION 5' - 0"
OUT FROM UNDER SPRAY PAD



3 DRAIN PIPE ELEVATIONS
SECTION VIEW
NOT TO SCALE



McADAMS
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2100 South Tryon Street
Suite 400
Charlotte, NC 28203
phone 704. 527. 0800
fax 919. 361. 2269
license number: C-0293, C-187
www.mcadamsco.com

CLIENT

TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE
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HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



**NORTH MECKLENBURG
PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

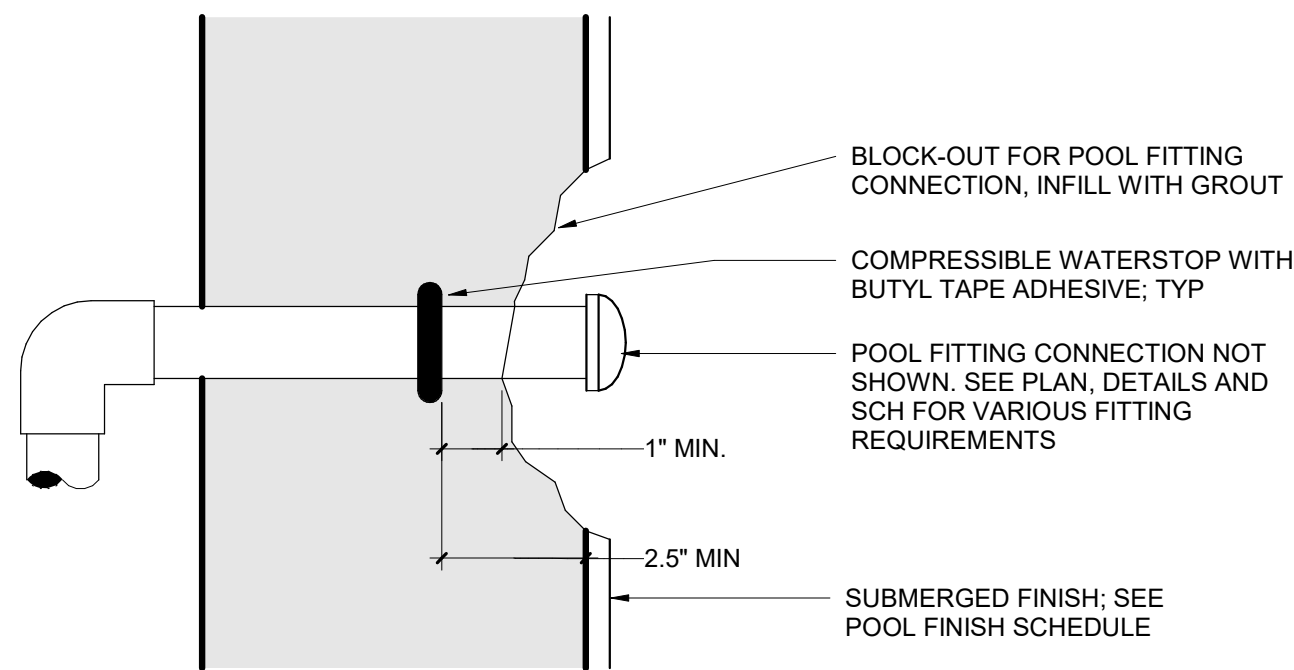
PROJECT NO. 22402
FILENAME
CHECKED BY HAC
DRAWN BY MDR
SCALE SEE DRAWING REFERENCE
DATE 07/14/2023

SHEET

OVERALL PIPING PLAN

PL300

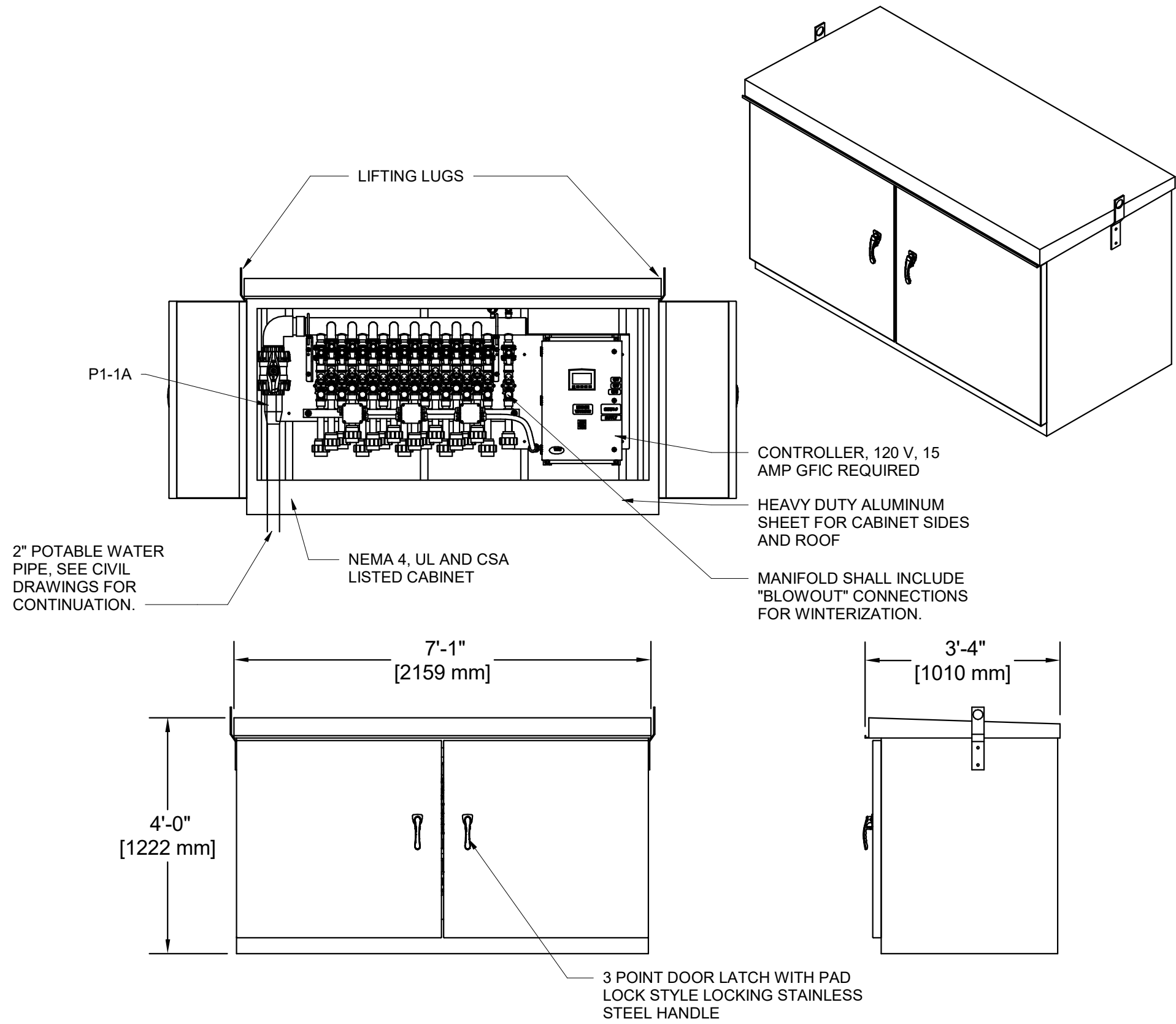
\\wrt-files\Projects\2023\23402 - NC Huntersville\Drawings\Disciplines\Architect\2023.06.12\HUN22003-TieBlock-24x36.dwg, 10/15/2024 4:06:37 PM, Rob Balgeman



FLOOR / WALL SECTION

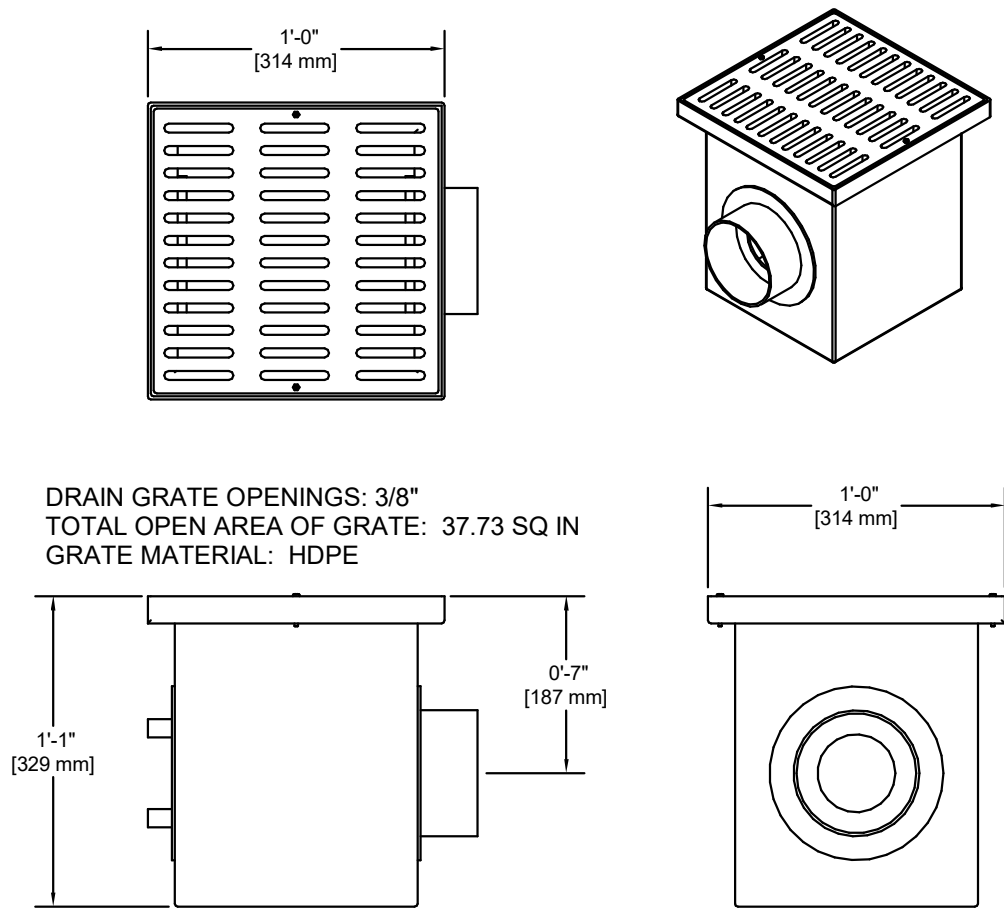
- NOTES:
1. DETAIL ILLUSTRATES COMPRESSIBLE WATERSTOP FOR PIPE PENETRATIONS THROUGH POOL SHELL. SEE PIPING PLANS AND DETAILS FOR APPLICABLE INSTALLATION LOCATIONS. BASIS OF DESIGN FOR 6" OD PIPES OR LARGER IS TYPE KBA-1510FP COMPRESSIBLE WATERSTOP BY ADEKA. FOR PIPES SMALLER THAN 6" OD USE SYNKOFLEX FLEXIBLE WATERSTOP. SUBSTITUTIONS MUST BE APPROVED BY ENGINEER.
 2. DIMENSION ABOVE IS A MIN FOR CONCRETE COVERAGE AND DOES NOT INCLUDE THE POOL FINISH. PROVIDE ADDITIONAL CONCRETE COVERAGE IF POSSIBLE.
 3. PROTECT WATERSTOP FROM WATER, DIRT, DEBRIS, AND DAMAGE PRIOR TO COVERING WITH CONCRETE.
 4. SEE SPECIFICATION SECTION 131120 FOR ADDITIONAL WATERSTOP REQUIREMENTS.
 5. STEEL REINFORCEMENT OMITTED FOR CLARITY. SEE STRUCTURAL DETAILS FOR TYPICAL WALL/FLOOR REINFORCING STEEL REQUIREMENTS AND STEEL REQUIREMENTS AROUND PIPE PENETRATIONS. SPACING BETWEEN REINFORCING STEEL AND WATERSTOP SHALL BE NO LESS THAN 1.5xDIAMETER OF THE LARGEST AGGREGATE IN THE APPROVED CONCRETE MIX. INSTALL WATERSTOP ON POOL FINISH SIDE OF REINFORCING STEEL.

5 | WATERSTOP DETAIL - TYPICAL POOL PIPE PENETRATION
DETAIL VIEW
NOT TO SCALE



NOTE:
PROVIDE CABINET AND MANIFOLD FROM PLAYFEATURE MANUFACTURER. BASIS OF DESIGN SHALL BE AG CABINET 18 VALVE AS MANUFACTURED BY WATERPLAY OR EQUAL, WITH A MINIMUM 18 PIPE CONNECTIONS AT 1.5". CONTRACTOR TO INSTALL PER MANUFACTURER'S SPECIFICATIONS AND REQUIREMENTS.
PROVIDE MANIFOLD WITH MANUFACTURER'S RECOMMENDED PRESSURE REDUCING VALVE. PRESSURE REDUCING VALVE RANGE SHALL BE SET IN FIELD DURING START-UP TO ACHIEVE OPTIMUM WATER FEATURE FUNCTION.

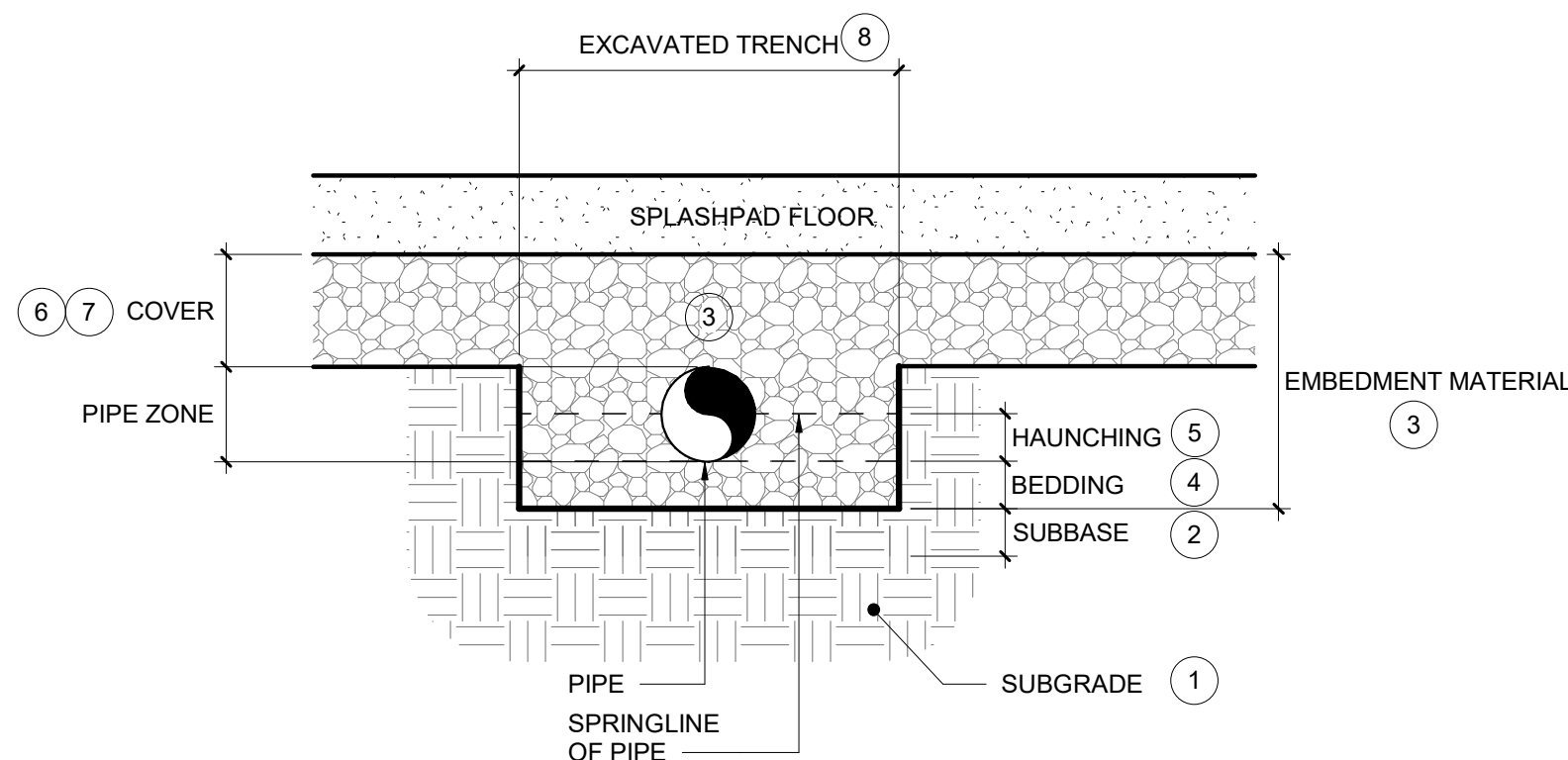
3 | VALVE CABINET
DETAIL VIEW
NOT TO SCALE



NOT PROPYLENE BASIN
1- PROVIDE 12"X12" STAINLESS STEEL SUMPS WITH FLAT HDPE/PEHD DRAIN GRATES AS MANUFACTURED BY WATERPLAY OR EQUAL.
2- ENCASE IN PAD CONCRETE PER DETAIL 5/PL210.

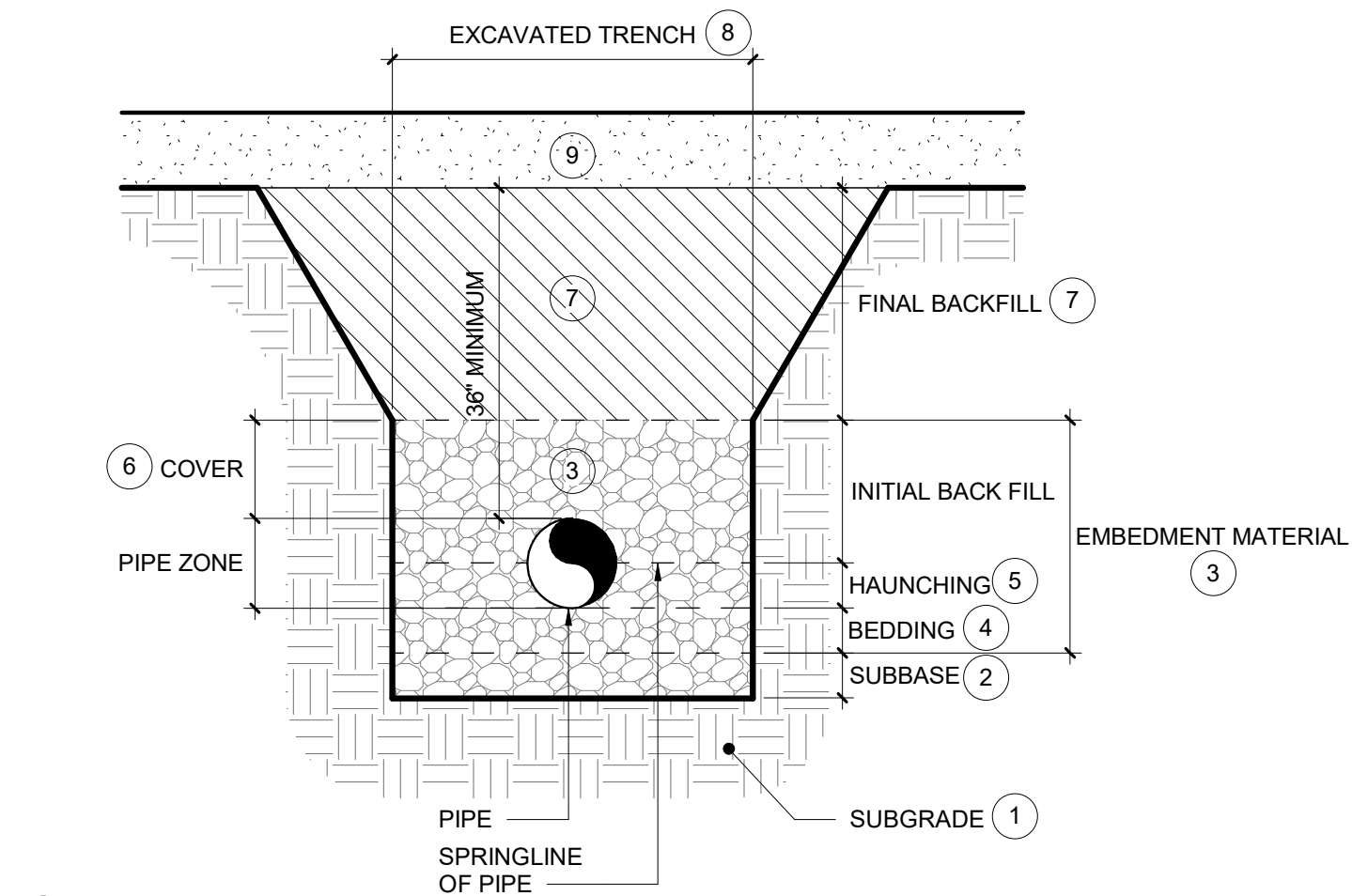
4 | DRAIN DETAIL
DETAIL VIEW
NOT TO SCALE

1 | POOL PIPE TRENCH BENEATH POOL FLOOR
DETAIL VIEW
NOT TO SCALE



- # KEY NOTES:
1. SUBGRADE: MINIMIZE DISTURBANCE OF EXISTING SOILS ON SIDES AND BELOW PIPE TRENCH DURING EXCAVATION. CLEAR SUBGRADE OF LARGE STONES & ORGANIC MATERIALS.
 2. SUBBASE MATERIALS: REQUIRED ONLY IF EXISTING SUBGRADE CONTAINS UNSUITABLE SOILS AND/OR DOES NOT MEET THE REQUIREMENTS OF THE GEOTECHNICAL REPORT FOR UTILITY TRENCHES.
 3. EMBEDMENT MATERIALS: ASTM D2487 CLASS 1A OR 1B AGGREGATE, 1.5" MAXIMUM SIZE.
 4. BEDDING: MINIMUM 6 INCH THICK AGGREGATE LAYER.
 5. HAUNCHING: PLACE AND COMPACT HAUNCHING MATERIALS UNDER AND AROUND PIPE/S UP TO THE PIPE SPRINGLINE BY HAND TO ASSURE CONTINUOUS AND EFFECTIVE PIPE SUPPORT.
 6. COVER: MINIMUM 6 INCHES ABOVE TOP OF PIPE.
 7. POOL BEDDING COURSE/SUBBASE. SEE PL200 FOR REQUIREMENTS.
 8. TRENCH WIDTH FOR EMBEDMENT MATERIALS: MINIMIZE WIDTH TO 6" - 12" BETWEEN TRENCH WALL AND EDGE OF NEAREST PIPE. ALLOW 6" MINIMUM BETWEEN ADJACENT PIPE WALLS WHEN PLACING MULTIPLE PIPES IN A COMMON TRENCH.

GENERAL NOTES:
A. SEE SPECIFICATIONS SECTION 13 11 20 FOR ADDITIONAL POOL PIPE TRENCH MATERIAL AND INSTALLATION REQUIREMENTS.
B. PLACE ALL PIPE TRENCH MATERIALS IN 6" MAXIMUM LOOSE LIFTS.



- # KEY NOTES:
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 6. COVER: MINIMUM 6 INCHES ABOVE TOP OF PIPE.
 7. FINAL BACKFILL: USE ON-SITE EXISTING SOILS MEETING THE PROJECT GEOTECHNICAL REPORT REQUIREMENTS FOR BACKFILL MATERIALS. DO NOT USE ORGANIC MATERIAL, CLAY, TOPSOIL, OR OTHER DELETERIOUS SUBSTANCES. SLOPE TRENCH EXCAVATION IN FINAL BACKFILL ZONE AS NEEDED.
 8. TRENCH WIDTH FOR EMBEDMENT MATERIALS: MINIMIZE WIDTH TO 6" - 12" BETWEEN TRENCH WALL AND EDGE OF NEAREST PIPE. ALLOW 6" MINIMUM BETWEEN ADJACENT PIPE WALLS WHEN PLACING MULTIPLE PIPES IN A COMMON TRENCH.
 9. FINAL GRADE MATERIALS: SEE RELATED PROJECT DRAWINGS AND SPECIFICATIONS FOR SOIL MATERIALS AND PLACEMENT REQUIREMENTS AT FINAL GRADE ELEVATIONS (E.G. DECK, CIVIL, LANDSCAPE, ETC. DRAWINGS).

GENERAL NOTES:
A. SEE SPECIFICATIONS SECTION 13 11 20 FOR ADDITIONAL POOL PIPE TRENCH MATERIAL AND INSTALLATION REQUIREMENTS.
B. PLACE ALL PIPE TRENCH MATERIALS IN 6" MAXIMUM LOOSE LIFTS.
C. COORDINATE WITH OTHER TRADES AS NEEDED TO ASSURE FOOTING/FOUNDATIONS ABOVE DO NOT LOAD THE PIPES. MAINTAIN PROPER CLEARANCES TO PREVENT UNDERMINING OF ADJACENT FOOTINGS/FOUNDATIONS.

2 | POOL PIPE TRENCH
DETAIL VIEW
NOT TO SCALE

CLIENT

TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE
RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



**NORTH MECKLENBURG
PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO. DATE

PLAN INFORMATION

PROJECT NO. 22402
FILENAME
CHECKED BY HAC
DRAWN BY MDR
SCALE SEE DRAWING REFERENCE
DATE 07/14/2023

SHEET

MECHANICAL NOTES

PL301

ADDENDUM NUMBER ONE

Date: September 29, 2023
From: McAdams
Re: North Mecklenburg Park Splash Pad
16131 Old Statesville Rd.
Huntersville, NC 28078

NOTICE TO BIDDERS:

Bidder is hereby notified that this Addendum shall become a part of the Contract Documents and shall be attached to the Project Manual for the Project.

The following items are intended to revise and clarify the Drawings and the Project Manual.

The bidder shall ensure that their Sub-Bidders are in full receipt of the information contained herein.

ADDENDA ITEMS:

PROJECT MANUAL	1 Specifications Section Revised
-----------------------	---

DRAWINGS	CAD file provided.
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HYDRANT FLOW TEST

PRE-BID MEETING NOTES

PRE-BID MEETING SIGN-IN SHEET

PROJECT MANUAL

1. Instructions to Bidders. Edited project duration to 140 days (see attached).
2. Bid Proposal. Added language to allow for splash pad system substitutions (see attached).
3. Contract. Edited to allow 140 days for project duration (see attached).

QUESTIONS

The following questions were received after the mandatory pre-bid meeting for the project. These answers are direct guidance to the bidders and will be reflected in the conformed set of contract documents upon which the

project contract will be based. The changes made to the Project Manual and the Drawings are all derived from these responses to these questions.

1. Will an engineer's cost estimate be provided?

McAdams Response: NO.

2. Has a contingency been established on the bid form?

McAdams Response: NO.

3. Will the contractor be responsible for project signage?

McAdams Response: Yes.

4. Will 3rd party testing be provided for the project?

McAdams Response: Yes, from a previously established on call.

Questions and requests received but not yet addressed will be addressed as a part of the next Addendum (Addendum 2).

All additional comments and any additional questions must be submitted to Nick Lowe nlowe@mcadamsco.com

Sincerely,

MCADAMS



Nick Lowe, RLA, ASLA
Senior Landscape Architect

INSTRUCTIONS TO BIDDERS

Project Designer: McAdams
2100 South Tryon Street
Suite 400
Charlotte, NC 28203
704.527.0800

PLEASE NOTE: ALL QUESTIONS REGARDING THE CONTRACT DRAWINGS, AND THE CONSTRUCTION SPECIFICATIONS INDICATED ON SAID DRAWINGS SHOULD BE DIRECTED TO THE PROJECT DESIGNER. ALL QUESTIONS AND ANSWERS PROVIDED WILL BE POSTED ON THE TOWN'S WEBSITE AS AN ADDENDUM TO THE CONTRACT DOCUMENTS. BIDDERS WILL BE RESPONSIBLE FOR ENSURING THAT THEY HAVE RECEIVED AND RELIED UPON ALL ADDENDA FOR THE PROJECT IN SUBMITTING THEIR BIDS.

1. **FAMILIARITY WITH WORK AND CONDITIONS:** Before preparing Bid Proposals, Bidders are urged to visit the site of the Project to inform and familiarize themselves with all conditions involved and under which the Project is to be constructed or apparatus erected or installed. The Town of Huntersville will not be responsible to the Contractor for payments other than as set out in the contract price, should conditions be different than those assumed or contemplated by the Contractor. The Contractor is required to satisfy himself, before bidding, as to the correctness of the site as indicated by the plans.
2. **FAMILIARITY WITH LAWS, ETC.:** The Bidder is assumed to have made himself familiar with all Federal, State, and Local Laws, ordinances and regulations which may in any manner affect those engaged or employed in work or the materials or equipment in or upon the work, or in any way affect the conduct of the work, and no pleas of misunderstanding will be considered on account of the ignorance thereof. If the Bidder or Contractor shall discover any provisions in the plans, specifications, or contract which are contrary or inconsistent with any such law, ordinance, or regulation, he shall forthwith report it to the Project Designer in writing before the bid opening.
3. **INTERPRETATIONS OF PLANS:** If any prospective Bidder is in doubt as to the true meaning of any part of the plans, or other proposed contract documents, he may submit to the Project Designer, a written request for an interpretation thereof, who will either answer or secure an answer based upon their relative expertise. The person submitting such request will be responsible for its prompt delivery. Note, requests for clarification or interpretation must be submitted no later than **5:00 PM on October 10th, 2023**. Any interpretation of the proposed documents will be made only by addendum duly issued and posted on the Town's website. The Project Designer will not be responsible for any other explanations or interpretations of the proposed document. The Contractor shall acknowledge receipt of all addenda in the space provided in the Bid Proposal.
4. **CONTRACT DOCUMENTS:** The Contract Documents consist of the Invitation to Bid, Instructions to Bidders, Bid Proposal Form, Non-collusion Affidavit, Substitution Listing, all Addenda issued, the Contract Drawings, the Town's Standard Form Contract, the General Conditions of the Construction Contract, and all exhibits and attachments incorporated by reference to any of the Contract Documents.

5. **BID PROPOSAL FORM:** Each Bidder must submit a Bid Proposal on the blank forms herewith provided including: Bid Proposal Form, Non-collusion Affidavit, and Substitution Listing Form and Bidder's Qualification Form. Each Bidder must include both the Bid Proposal Form and the Non-collusion Affidavit with their Bid Proposal, otherwise the Bid Proposal will not be considered. Each Bidder shall sign his Bid Proposal correctly by one duly authorized and Bid Proposals may be rejected if they show any omissions, alterations of form, additions not called for, or other irregularities of any kind. Conditioning and unbalancing of bids will not be permitted.
6. **BID PROPOSAL REPRESENTATIONS:** Submission of a Bid Proposal Form shall be a representation of the Bidder of all of the following:
 - a. The Bidder has carefully examined the CONTRACT DOCUMENTS and fully understands them.
 - b. The Bidder has carefully examined the site or sites of the Project and is familiar with the conditions under which the Work, or any part of it, is to be done, and the conditions which must be fulfilled in the furnishing and/or erection or construction of any or all items of the Project.
 - c. The Bidder has the financial means and stability to provide all materials and all necessary tools, machinery, and all means necessary to do all the Work in the manner prescribed in the Contract Documents and according to the Plans and the requirements of the Town of Huntersville, in a workmanlike manner, consistent with the standards of the profession in and around Huntersville.
 - d. The Bid has been made without connection with any other person, company, or parties making a similar Bid Proposal, and that it is in all respects fair and in good faith, without collusion or fraud.
 - e. The Bidder understands that it is the intention of the Town of Huntersville, North Carolina, to award the Contract on the basis of Bid Proposals received at this letting, however, the Town reserves the right to reject any or all bids.
 - f. If the Bid Proposal is made by a Corporation or Contractor, the Bid Proposal Form has been signed by its proper officers or members, as applicable, in a legal manner and its official address stated therein.
 - g. The Bidder will enter into the Town's Construction Agreement, included as part of the Contract Documents, and will perform all of the work necessary for the construction of facilities outlined in the CONTRACT DOCUMENTS for the Town of Huntersville, North Carolina, for the bid price stated in the Bid Proposal Form.
 - h. The Bidder has received and completely understood the Addenda and the bid price stated in the Bid Proposal Form reflects all Addenda.

7. SUBMISSION OF BID PROPOSALS: It is the responsibility of each Bidder, without excuse, to ensure that their Bid Proposal is submitted at the right place by the deadline. Each Bid Proposal must be submitted in a sealed envelope, to indicate its contents without being opened. The name of the Bidder, his address and his license number must be marked on the outside of the envelope. **This envelope shall be placed in another one** addressed to the attention of Michael Jaycocks, Town of Huntersville Recreation Department, 105 Gilead Road, P.O. Box 2879, Huntersville, North Carolina, 28070, and if forwarded otherwise than by mail, must be delivered to Mr. Michael Jaycocks at the above address. If the mail is delayed beyond the date and hour set for the Bid Proposal opening, proposals thus delayed will not be considered. The outer envelope must also state the Project Name and the name of the Bidder. Bid Proposals will be accepted until 2:00 PM on the date of the Bid Proposal Opening. Bid Proposals submitted after this time cannot be accepted.
8. OPENING OF BID PROPOSALS: Bid Proposals will be opened publicly and read promptly at the time, on the date, and at the place set forth in the "Invitation to Bid". Bidders or their authorized agents and other interested parties are invited to be present. The Bid Proposal shall be deemed valid for a period of sixty (60) calendar days after the opening thereof. The Bidder may request to withdraw their Bid Proposal in writing, received prior to the time for opening of the Bid Proposals, directed to the Town of Huntersville. Bid Proposals may be withdrawn after the opening of the Bid Proposals **for unintentional and substantial arithmetic errors or omissions pursuant to N.C.G.S. § 143-129.1 only (not for mistakes in judgment)** if the request is made in writing to and received by Michael Jaycocks, Huntersville Parks and Recreation Director, within seventy-two hours after the time for opening Bid Proposals. Such written request of withdrawal must include sufficient documentation of the clerical error or math computational error.
9. AWARDING OF CONTRACT: If awarded, the Town of Huntersville, North Carolina will award the contract conditioned upon funds being made available for such construction. If awarded, the contract will be awarded to the lowest, responsive, responsible Bidder taking into account quality, performance, and time specified in the Contract Documents. Consideration will be given only to Bid Proposals of contractors who are experienced in the class of work proposed and who can refer to projects of similar magnitude and/or character as have been completed by them. The Town also reserves to itself the right to reject any or all Bid Proposals and to waive minor informalities or technicalities, as it may deem to be in the Town's best interest.
10. EXECUTION OF CONTRACT: The successful Bidder will be required to enter into the Town's Standard Form Contract, included as part of this Project Manual, and must execute the Contract no later than ten (10) consecutive calendar days following receipt of the Notice of Award from the Town. Failure of a Bidder to execute the Contract within said ten (10) day period shall result in the forfeiture of the bidder's bid bond as described below.
11. CHECKS, CASH, OR BID BOND: Each proposal must be accompanied by a Bid Bond executed by a corporate surety licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will, upon demand for with make payment to the Owner if the bidder fails to execute the Contract. The Bid Bond shall be in the amount of five percent (5%) of the total bid plus all of the alternates. The Bid Bond shall be valid for a minimum of ninety (90) calendar days. In lieu of a Bid Bond, a deposit equal to five percent (5%) of the total bid plus all alternates in the form of a Cashier's Check or Certified Check on some bank or trust

company insured by the Federal Deposit Insurance Corporation and payable to the Town of Huntersville may be provided. The purpose of the Bid Deposit or Bid Bond is to ensure that the bidder will enter into a Contract with the Owner with the terms stipulated in the Bid Proposal and the bidder guarantees that a Performance, Labor and Material will be executed. If the Contractor fails to execute a Contract, the Bid Bond or Bid Deposit shall be forfeited to the Town. Bid security shall be submitted separately for each project bid.

12. **PERFORMANCE BOND:** The successful Bidder shall provide a performance bond equal to 100% of the contract sum and shall conform to the Town's requirements. Bond/surety shall be provided in a form as noted in item 11 above.
13. **PAYMENT BOND:** The successful Bidder shall provide a payment bond equal to 100% of the contract sum and shall conform to the Town's requirements. Bond/surety shall be provided in a form as noted in item 11 above.
14. **COORDINATION OF WORK:** During the performance of the contract, it shall be the responsibility of the successful Bidder to pursue the orderly progress of all work stages throughout the Project and to assure that all work is completed within the time period stipulated herein as the Contract Period. In executing the duties incurred by these responsibilities, the successful Bidder shall provide sufficient executive and supervisory staff in the field to enable efficient and expeditious progress of the work. The Town relies upon the organization, management, skill, cooperation, and efficiency of the successful Bidder to supervise, direct, control and manage the work and the efforts of the sub-contractors so as to deliver the intended construction to the Contract Documents and within the scheduled time.
15. **LIQUIDATED DAMAGES:** The successful Bidder is required to complete the Project as outlined in the Project progress schedule and as defined by the Contract Period. Should the successful Bidder fail to assure the completion of the total Project satisfactorily within the time period specified in the contract, the successful Bidder shall be charged with liquidated damages at a rate of **Five Hundred Dollars (\$500.00) per calendar day** until the total Project is successfully completed.

If in the event the successful Bidder is granted substantial completion by the Project Designer and fails to complete and/or correct all of the remaining list of items to be corrected within 30 days of the date of substantial completion, the successful Bidder shall be charged with **liquidated damages at a rate of Five Hundred Dollars (\$500.00) per calendar day** until all of the remaining items on the list are completed and corrected and approved by the Project Manager or Project Designer.

The successful Bidder shall indemnify the Town for any claim or legal action against the Town by any subcontractor or supplier as a result of injury or damages caused by that Contractor to others, including paying judgements against the Town, all costs and expenses, legal or otherwise, incurred by the Town in defending the suit.

16. **CONTRACT REDUCTION:** The Town retains the exclusive right to reduce any or all of the scope of work within the Contract Documents after award of the contract for budgetary or other reasons. Should the Town choose to reduce any or all of said scope of work, the successful Bidder shall not be allowed any claims for anticipated profit or overhead on such deleted work.
17. **CONTRACTOR'S LICENSE:** All Bidders must possess a valid North Carolina General Contractors License to do work in North Carolina as required by N.C.G.S. Chapter 87, plus any other applicable licenses. A copy of these requirements is included in the bid documentation.
18. **TIME OF CONSTRUCTION:** The Successful Bidder shall begin work on the date specified in the Notice to Proceed and shall pursue all necessary phases of construction in order to substantially complete the base bid work within **140 consecutive calendar days**. This time of construction shall be defined as the Contract Period.
19. **CONSTRUCTION SCHEDULES:** The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Town and Project Designer's information, a construction schedule. The construction schedule shall be a detailed bar chart or Critical Path Method, for the Work to be performed. The schedule shall not exceed time limits current under the Contract Documents and shall include weather delays and delays due to delivery of the equipment. The schedule shall be related to the entire Project to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of Work.

The Contractor shall maintain the construction schedule, making monthly adjustments, updates, and corrections. The construction schedule shall be reviewed at each construction meeting.

The Contractor shall also prepare a schedule of submittals which shall be coordinated with the Contractor's construction schedule. The submittal schedule shall also be reviewed at each construction meeting and adjusted as necessary.

The following chart is the anticipated adverse weather delays for this project.

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
10	10	11	6	6	6	6	5	6	6	7	9

The construction schedule shall reflect the anticipated adverse weather delays.

National Oceanic and Atmospheric Administration (NOAA) data shall be used to claim addition construction days beyond the above chart for critical path activities. Weather days occurring on holidays or Sundays will not be considered as delays significant to the Contract completion date. The request for a weather delay must be submitted to the Consultant in writing with supporting data within (20) days following the occurrence.

The Contractor shall allocate sufficient resources to meet the current construction schedule.

20. TECHNICAL SPECIFICATIONS. Technical specifications are included both on the Contract Drawings themselves, and within the Project Manual and are included in the bid documents. It is up to each Bidder to satisfy themselves that these technical specifications are sufficient to enable them to perform the Work. If a Bidder determines that the technical specifications are not sufficient, the Bidder should pose appropriate questions to the Project Manager who will secure answers from the Project Designer. All such inquiries and answers will be put out in the form of an Addendum prior to the time for opening bids.
21. SUBSTITUTIONS: Requests for approval of substitutions for specified products or “or equal” or “equivalent” submittals other than those listed as acceptable products will be considered only upon submission of samples and manufacturers’ data, in triplicate, of both the product specified and the product intended for substitution. All such requests for substitutions must be received for consideration by the Project Designer no later than 10 business days prior to the Bid Proposal opening. All substitutions approved will be put into an Addendum. The Town reserves the right to consider and accept any and all substitutions proposed in determining the lowest responsible bidder.

END OF INSTRUCTIONS TO BIDDERS

BID PROPOSAL

SINGLE PRIME GENERAL CONSTRUCTION CONTRACT BID PROPOSAL

NORTH MECKLENBURG PARK SPLASH PAD

ALTERING THE FACE OF THIS FORM IN ANY MANNER, OR PROVIDING INFORMATION NOT SPECIFICALLY REQUESTED SHALL RENDER THIS BID PROPOSAL NON-RESPONSIVE AND INELIGIBLE FOR CONSIDERATION BY THE TOWN.

Date: _____

TO: Town of Huntersville, North Carolina

To Whom It May Concern:

The undersigned Bidder, having examined carefully the site, the Invitation to Bid, Instructions to Bidders, Construction Drawings, the form Construction Agreement, Supplementary Documents (if any) and subsequent Addenda (as acknowledged herein) for the construction of a splash pad and pedestrian hardscape areas with associated demolition/clearing, grading, erosion control, installation of utilities, stormwater conveyance measures, and landscaping. Bidder hereby proposes to furnish all labor, materials, equipment, and services necessary to perform the Work required in the Construction Documents and terms of this Proposal for the amounts listed below.

Base Bid Total: \$ _____
(Lump Sum)

Splash Pad Statements:

The bid total provided above includes the basis of design equipment as shown on the Contract documents for the Splashpad. Circle, Yes or No?

If "no", complete the following:

The bid total listed above includes specialty pool play equipment provided by the following named manufacturer, _____, conformant with the requirements of specification section 131147, Pool Play Equipment.

The bid total provides equivalent value to the basis of design and includes the following,

_____ Above Grade Spray/Play Equipment Elements *(Insert quantity)*
_____ Flush Mounted Spray/Play Equipment Elements *(Insert quantity)*
_____ Flush Mounted Drains *(Insert quantity)*
_____ Activators *(Insert quantity)*
_____ Drains *(Insert quantity and dimensions)*
_____ Flow required for all features *(insert total flow in GPM)*
_____ Flow limited by sequencing of controller. *(insert total flow in GPM)*

in the concept orientation shown in the attached sheets. *(Bidder shall attach no more than ten letter size pages to define the layout, aesthetics, play value and theming for the pool play equipment included in the bid total).*

- The pool play equipment included in the bid required no change to slope or elevations. *Yes or No?*
- The equipment included in the bid includes swappable bases for easy relocation or replacement of features? *Yes or No*
- A manufactured manifold, cabinet and controller are included in the bid as standard to the play equipment manufacturer? *Yes or No?*

Please note any other modifications to the basis of design included/assumed in your bid total.

Town reserves the right to award contract based on Base Bid only, or combination of Base Bid and any/all of the Alternate Bid Items below. The Bidder shall indicate if the Alternate is an add or deduct for the overall bid. If the Alternate is left blank, then the Alternate will not change the Base Bid if accepted. The Bidder agrees to provide the Alternates as described in the Contract Documents for the following prices:

Alternate #1 – Two Additional Cantilevered Shade Sails: Add \$ _____ (Lump Sum)

Alternate #2 – Splash Pad Specialty Surface: Add \$ _____ (Lump Sum)

Unit Prices		
Description	Unit	Unit Price
Undercut of Unsuitable Soils	CY	
Mass Rock Removal as describe in	CY	
Trench Rock as Removal	CY	
Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.		

The undersigned further agrees that this Bid Proposal shall be valid for a period of sixty (60) days from the date of receipt of the Bid Proposal and that if this Bid Proposal is accepted by the Town within this period, the Bidder will execute the Construction Agreement provided as part of the Contract Documents.

The undersigned further agrees to begin the work promptly upon receipt of the Notice to Proceed and to pursue the work with an adequate work force to complete the work within 120 calendar days from receipt of the Notice to Proceed. Liquidated Damages of \$500.00 per calendar day are hereby agreed upon as an assessment from the Contractor for failure to complete the work within the time period stated herein.

The undersigned Bidder further proposes and agrees to commence the work promptly upon notice, with an adequate force to satisfactorily complete the Project.

The undersigned acknowledges receipt of the following addenda which will be considered as part of the Contract Documents.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

CONTRACTOR: _____
(Company)

Contractor ☐ is or ☐ is not a historically underutilized business, registered with the North Carolina Office of Historically Underutilized Businesses. (Must be completed by all Bidders.)

ADDRESS: _____

BY: _____
(Signature) (Typed Name)

TITLE: _____

NC General Contractor's License No. _____

NC State Sales and Use Tax Registration _____

☐ Non-collusion Affidavit has been completed and is attached to this Bid Proposal Form (Required)
Note: Inclusion of the non-collusion affidavit is mandatory. A bid will be rejected as non-responsive if not included in the bid submission.

Select One (one or the other must be chosen by the Bidder):

☐ Substitution Listing (if substitutions are being proposed) is attached to this Bid Proposal Form.
Note: Failure to include the Substitution Listing with this Bid Proposal will render the substitutions ineligible for consideration by the Town.

OR

☐ Substitution Listing is not attached to this Bid Proposal Form (No substitutions are proposed.)



Parks and Recreation
105 Gilead Road, Suite 300
Huntersville, NC 28078
(704) 766-2220

CONTRACT FOR CONSTRUCTION SERVICES

CONTRACTOR: Contractor Name
Address 1
City, State Zip
Contact Email

PROJECT: North Mecklenburg Park Splash Pad
SITE LOCATION: 16131 Old Statesville Rd.
Huntersville, NC 28078

This Contract for Construction and Repair, and all exhibits, (collectively this "Contract") is entered into this _____ day of _____, 20____ by and between the Town of Huntersville, a municipal corporation of the State of North Carolina (the "Town") and _____ located at _____ (the Contractor").

WITNESSETH:

That for and in consideration of the mutual promises set forth in this Contract, the sufficiency of which is acknowledged by the parties hereto, the parties do mutually agree as follows:

1. Scope of Services. The Contractor agrees to perform for the Town the services according to the following construction design drawings, plans, and specifications, which is incorporated herein by reference as Exhibit C. The Contractor agrees to provide the labor, service, equipment, and materials, and other services included in Exhibit C, which shall constitute the "Work." The Contractor warrants that the Contractor has visited the location of the project and is familiar with all field conditions bearing upon the Contractor's performance of the Work; that the materials and equipment furnished under the Contract are of good quality and new (unless otherwise permitted); that the Work meets or exceeds the standards ordinarily observed in the industry; and that the Work conforms to the requirements of the Contract and to all applicable codes, ordinances, laws, or regulations. The Contractor further warrants and promises that the Work shall be free from defects and nonconformities in materials and workmanship for a period of one year from the later of the "Date of Completion" or such date as the Contractor actually completes all the Work. During such period, the Contractor will remedy at Contractor's expense any nonconformities or defects in the Work within a reasonable time after receiving notice thereof from the Town.
2. Fees. Fees for the Work shall be specified in a fee schedule attached hereto as Exhibit D (the "Contract Price").

3. Change Orders. The Contractor agrees that the Town may order changes to the general scope of the Work, including additions, deletions, and similar revisions ("Change Orders"). The parties agree to adjust the Contract Price to reflect the effects of such changes. These changes shall be authorized only upon execution of a written Change Order. The amount of any increase or decrease in the Contract Price shall be by mutual acceptance of a total amount supported by sufficient data and information to substantiate the change. If the Town and Contractor do not mutually agree on the amount of the change in the Contract Price, the Contractor will proceed with the Work described in the Change Order and the Town will pay the reasonable costs of any additional work as determined by the Town, including a reasonable amount for the Contractor's overhead and profit. Any decrease in Contract Price for a decrease in the Work will be the reasonable costs of the Work deleted as determined by the Town, including a reasonable amount for the decrease in the Contractor's overhead. The Contractor may submit claims for an increase in the Contract Price or an extension of the Date of Completion by means of a written Change Request. The Contractor agrees to submit the Change Request within a reasonable time after the event giving rise to the requested change and before the Contractor undertakes any additional work. Upon receipt of a Change Request, the Town, at its sole discretion, shall inform the Contractor whether to proceed with the additional work and shall approve any adjustment in the Contract Price or Date of Completion by issuing a Change Order as provided above. The timely submission of a written Change Request shall be a condition precedent to the issuance of a Change Order, and the Town will have no obligation to pay the Contractor for additional work performed by the Contractor without a Change Order approved in writing by the Town.
4. Historically Underutilized Businesses (HUB). It is the policy of the Town of to provide minorities and women equal opportunity for participating in all aspects of the Town's contracting and procurement programs, including but not limited to employment, construction development projects, materials/services contracts and/or lease agreements, consistent with the laws of the State of North Carolina.
5. Personal Protective Equipment (PPE). The Contractor and his/her employees will wear the proper equipment such as, but not limited to, high visibility clothing, safety glasses, hearing protection, etc. at all times when performing the Work at the Site Location(s). Failure to be in the appropriate PPE will result in removal from the project site.
6. Contract Insurance. Contractor shall be required to purchase and maintain, during its performance under this Contract, insurance coverage as shown on the Insurance Requirements as stated in Exhibit B, which is incorporated herein by reference. All insurance purchased shall have a specific endorsement, copy of which shall be provided to the Town, naming the Town as an additional insured and providing that such insurance will not be cancelled without providing thirty (30) days advance written notice to the Town.
7. Working Drawings and Specifications at the Job Site. The Contractor shall maintain, in readable condition at his job site one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the owner, designer, or his authorized representative. The Contractor shall also maintain at the job site, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on Project drawings by the Contractor and submitted to the designer upon Project completion and no later than 30 days after acceptance of the Project.

8. Materials, Equipment, Employees. The Contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of the work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.
9. Cleaning Up and Restoration of Site. The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the Project, the Contractor shall thoroughly clean the sites, and completely prepare the Project and site for use by the Owner. At the end of construction, the Contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs, and other elements shall be repaired, cleaned, or otherwise restored to their original state.
10. Protection of Work, Property, the Public, and Safety. The Contractor shall be solely responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. The Contractor shall be responsible for any damage to the owner's property or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. The Contractor shall be responsible for and pay for any damages caused to the owner.
11. As-Built Marked-Up Construction Documents. Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.
12. Retainage. Retainage on periodic or final payments on public construction contracts in which the total project costs are \$100,000 or more are allowed pursuant to N.C.G.S. § 143-134.1.
13. Addendums. If applicable, Contractor acknowledges that it has received, executed, and shall abide by any addendums issued by the Town prior to this Contract.
14. Standard Terms and Conditions. The Standard Terms and Conditions, attached hereto as Exhibit A, shall be a part of this Contract. The Standard Terms and Conditions are hereby incorporated by reference, and all parties agree to be bound thereby.

15. Contract Term. Work will begin within ten (10) days of receipt of the Notice to Proceed from the Town. The Contractor and the Town recognize that time is of the essence for completion of the Work. Any Notice to Proceed shall also contain a date that the Contractor shall complete the Work by (the "Date of Completion"). The terms of this Contract shall apply to every Notice to Proceed issued by the Town. The Contractor shall complete all necessary phases of construction in order to substantially complete the base bid work within 140 consecutive calendar days. This time of construction shall be defined as the Contract Period.
16. Liquidated Damages. Contractor and Town recognize that time is of the essence and that Town will suffer financial and other losses if the Work is not completed by the Date of Completion, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Town if the Work is not completed on time. Accordingly, instead of requiring any such proof, Town and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Town \$500 for each day that expires after the end of the Date of Completion (as duly adjusted pursuant to the Contract) until the Work is complete.
17. Payment for Work. In consideration of the above Work, the Town will pay the Contractor the sum as further described on Exhibit D.

In witness thereof, the contracting parties, by their authorized agents, affix their signatures and seals at Huntersville, North Carolina, this _____ day of _____, 20_____.

Contractor

Town of Huntersville

Name:

Name of Contractor (type or print)

Town Manager

By:

(Signature)

Attest: _____

Town Clerk

Title:

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act

Attest:

(Secretary, if a corporation)

Finance Director

EXHIBIT A
STANDARD TERMS & CONDITIONS

1. **Acceptance.** Contractor's acknowledgment of the terms of this Contract constitutes an agreement to: (i) all terms and conditions set forth or referenced herein, (ii) on any attachments hereto, (iii) any applicable solicitation documentation related to this Contract (including without limitation any request for proposals or invitation for bids or Contractor's response thereto) that deal with the same subject matter as this Contract, and (iv) any other terms and conditions of a written agreement signed by Contractor and the Town that deals with the same subject matter as this Contract (collectively, the "Contract Documents"). The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Contractor and the Town with respect to the purchase by the Town of the: (i) goods ("Goods") and/or (ii) services provided or work performed ("Services") as described in the Contract Documents. The agreements set forth in the Contract Documents are sometimes referred to herein as the "Contract." In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to the Town shall control. No additional or supplemental provision or provisions in variance herewith that may appear in Contractor's quotation, acknowledgment, invoice, or in any other communication from Contractor to the Town shall be deemed accepted by or binding on the Town. The Town hereby expressly rejects all such provisions which supplement, modify, or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until the Town's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by the Town are subject to correction.
2. **Entire Agreement.** These terms and conditions and any other specifications contained in any other documents referenced shall constitute and represent the complete and entire agreement between the Town and Contractor and supersede all previous communications, either written or verbal with respect to the subject matter of this Contract.
3. **Changes, Additions, Deletions.** No changes, additions, deletions, or substitutions of scope of work, specifications, terms and conditions, quantity, unit of issue, delivery date, delivery charges or price will be permitted without the prior written approval from the Town.
4. **Relationship of the Parties.** The Contractor is an independent contractor and not an employee of the Town. The conduct and control of the work will lie solely with the Contractor. The Contract shall not be construed as establishing a joint venture, partnership, or any principal-agent relationship for any purpose between the Contractor and the Town. Employees of the Contractor shall remain subject to the exclusive control and supervision of the Contractor, which is solely responsible for their compensation.

5. **Prices.** If Contractor's price or the regular market price of any of the Goods or Services covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods or performance of such Services, Contractor agrees to give the Town the benefit of such lower price on any such Goods or Services. In no event shall Contractor's price be higher than the price last quoted or last charged to the Town unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
6. **Taxes.** Any applicable taxes shall be invoiced as a separate item.
7. **Substitutions.** No substitutions or cancellations shall be permitted without prior written approval from the Town.
8. **Indemnification.** To the greatest extent allowed by North Carolina law, the Contractor shall indemnify and hold harmless the Town, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses, attorneys' fees ("Claims"). In the event that any portion of the Work performed under the Contract shall be defective in any respect whatsoever, the Contractor shall indemnify and save harmless the Town, its officers, agents, employees, and assigns from all loss or the payment of all sums of money, but only to the extent allowed by law.
9. **Invoices and Payment Terms.** It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing that does not comply with this provision will subject the Contract to cancellation. Upon satisfactory delivery of the Goods or satisfactory completion of the Work, all invoices and statements shall reference the Contract number and be submitted to: Town of Huntersville, Accounts Payable, PO Box 664, Huntersville, North Carolina, 28070. Payment terms are Net 30 days after receipt of correct, undisputed invoice or acceptance of Goods or Services, whichever is later.

When the Contract is for construction services, the Contractor will submit monthly Requests for Payment for Work performed, for review. The Request for payment shall be based upon the Contractor's estimate of the percentage of the total Work completed during the period represented on the Request for Payment. The Contractor must certify that the Work represented in the Contractor's Request for Payment has been completed in accordance with the Contract Documents and certify that the Request for Payment is appropriate for payment before the Town shall be obligated to make such payment to the Contractor. If any Request for Payment is disputed by the Town, in whole or in part, the Town shall provide a written explanation for such dispute to Contractor within five days of receipt of the certified Request for Payment and shall pay all undisputed amounts therein.

10. **Anti-Discrimination and Equal Employment.** During the performance of the Contract, Contractor shall comply with all federal and state requirements concerning fair and equal employment and shall not discriminate against or deny the Contract's benefits to any person on the basis of race, religion, color, creed, national origin, age, sex (including sexual orientation, gender identity, and pregnancy), disability or handicapping condition, or genetic information.

11. **Insurance.** The Contractor shall provide the insurance coverages shown on Exhibit B, attached hereto and incorporated herein by reference. The Contractor shall provide the Town with a North Carolina Certificate of Insurance and such endorsements as may be required by the Contract Documents prior to the commencement of any work under the Contract and agrees to maintain such insurance until the completion of the Contract. Such certificates of insurance shall be considered part of the Contract.
12. **Ethics in Public Contracting.** By submitting their prices and acceptance of this Contract, all Contractors certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other supplier, manufacturer, or subcontractor in connection with their offer, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
13. **Applicable Laws and Courts.** All Town Contracts shall be governed in all respects by the laws of the State of North Carolina. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation, and enforcement of the Contract, shall be governed in all respects by the laws of the State of North Carolina and venue shall be proper only in a court of competent jurisdiction located in Mecklenburg County, North Carolina. The Contractor represents and warrants that it shall comply with all applicable federal, state, and local laws, regulations, and orders, including, not limited to, licensure requirements.
14. **Codes and Permits.** When applicable, the Contractor shall obtain all required permits, give all required notices, and comply with all laws, ordinances, codes, rules, and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules, and regulations, and without such notice to the Town, Contractor shall bear all cost arising therefrom.
15. **License Requirement.** If applicable, the Contractor must be a licensed General Contractor as required by North Carolina General Statutes Section 87-1 and must have a good ethical and professional standing with the North Carolina General Contractor's Licensing Board. The Contractor will be responsible for providing properly qualified, licensed (if required) personnel to complete the Work in accordance with the standard of care ordinarily used by members of the Contractor's profession practicing under similar circumstances and at the same time in Mecklenburg County.
16. **Strict Compliance.** The Town may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.

17. **Assignment.** Contractor may not assign, pledge, or in any manner encumber Contractor's rights under this Contract or delegate the performance of any of its obligations hereunder, without Town's prior, express written consent.
18. **General Provisions.** The Town's remedies as set forth herein are not exclusive. Any delay or omission by the Town in exercising any right hereunder, or any waiver by the Town of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default.
19. **Warranties.** The Contractor warrants it shall adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town in the performance of the Work outlined in this Contract and any attached specifications. Contractor warrants that any finished Work completed hereunder shall also adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town. Contractor warrants that all Work delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance, or payment by the Town for the Work and shall run to the Town and any user of the Work. Contractor warrants that all Work will be performed in a professional and workman like manner in accordance with best industry practices. This express warranty is in addition to Contractor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or in equity, the Town shall be entitled to consequential and incidental damages.
20. **Quality and Workmanship.** All Work shall be performed to the satisfaction of the Town. The Work shall not be considered complete nor applicable payments rendered until the Town is satisfied with the Work provided.
21. **Default.** The Town may terminate the Contract, in whole or in part, immediately and without prior notice upon breach of the Contract by the Contractor. In addition to any other remedies available to the Town in law or equity, the Town may procure upon such terms as the Town shall deem appropriate, Work substantially similar to those so terminated, in which case the Contractor shall be liable to the Town for any excess costs for such similar supplies or services and any expenses incurred in connection therewith.
22. **Termination for Convenience.** The Town shall have the right, without assigning any reason therefore, to terminate any Work under the Contract, in whole or in part, at any time at its complete discretion by providing 10 days' notice in writing from the Town to Contractor. If the Contract is terminated by the Town in accordance with this paragraph, the Contractor will be paid in an amount which bears the same ratio to the total compensation as does the Work actually delivered or performed to the total originally contemplated in the Contract. The Town will not be liable to the Contractor for any costs for materials acquired or contracted for if such costs were incurred prior to the date of this Contract.

23. **Risk of Loss.** Risk of Loss for all supplies, materials, the Work performed, and the Project as it is being constructed, shall be on the Contractor until such time as substantial completion is achieved, and approved by the Town.
24. **No Third-Party Beneficiaries.** There shall be no intended nor incidental third-party beneficiaries of this Contract. Contractor shall include in all contracts, subcontracts, or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third-party beneficiaries.
25. **Exclusivity.** Nothing in this Contract shall require the Town to use the Contractor or prohibit the Town from soliciting third parties for the good or services provided in this Contract.
26. **Confidentiality.** The Contractor acknowledges the Town is subject public records law and no term shall be inconsistent with N.C.G.S. §132 et al.
27. **Valid Contract for Services.** In order for a Contract for Services of the Town to be valid, it must be executed by the Town Manager or his or her authorized designee and must be pre-audited in that manner required by the Local Government Budget and Fiscal Control Act, as the same may be amended.
28. **Verification of Work Authorization.** Contractor shall comply with, and require all contractors and subcontractors to comply with, the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes, "Verification of Work Authorization," sometimes known as E-verify, for all contractors and subcontractors.
29. **Iran Divestment List.** With the execution hereof, Contractor, certifies that they are not on the Iran Final Divestment List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.58, and will not contract with anyone on such List in performance of the work hereunder.
30. **Availability of Funds.** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the Town for the purpose set forth in this agreement.
31. **Severability.** If any provision of this Contract is found to be invalid or unlawful, then remainder of this Contract shall not be affected thereby, and each remaining provision shall be valid and enforced to the fullest extent permitted by law.
32. **Companies that Boycott Israel.** With the execution hereof, Contractor, certifies that they are not on the Companies that Boycott Israel List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.80, and will not contract with anyone on such List in performance of the work hereunder.
33. **Governmental Immunity.** Nothing contained in this Contract shall constitute a waiver of the Town's governmental immunity or of any limitation on liability or damages created by law.

ADDITIONAL TERMS AND CONDITIONS FOR FEDERAL CONTRACTS

For contracts using federal funds, the following additional terms and conditions shall apply:

1. **Davis-Bacon Act.** For all contracts in excess of \$2,000.00 for construction, alteration, or repair, including painting and decorating, of public buildings or public works, the Contractor shall comply with the Davis-Bacon Act, including payment of no less than the locally prevailing wages as determined by the Secretary of Labor. The contract shall not be valid unless the current prevailing wage as determined by the North Carolina Department of Labor is accepted. The Contractor shall also be prohibited from inducing, by any means, any person employed in the construction, completion, or repair of public work, to give up any part of the compensation to which he or she is otherwise entitled. The Town shall report all suspected or reported violations to the Federal awarding agency.
2. **Contract Work Hours and Safety Standards Act.** For contracts in excess of \$100,000 that involve the employment of mechanics or laborers, each contractor must be required to compute the wages of every mechanic and laborer on the basis of a standard work week of 40 hours. Work in excess of the standard work week is permissible provided that the worker is compensated at a rate of not less than one and a half times the basic rate of pay for all hours worked in excess of 40 hours in the work week. For construction work, no laborer or mechanic must be required to work in surroundings or under working conditions which are unsanitary, hazardous, or dangerous.
3. **Funding Agreements.** If a Federal award meets the definition of “funding agreement” under 37 C.F.R. § 401.2(a) and the Town or Contractor enter into a contract with a small business firm, or nonprofit organization regarding the substitution of parties, assignment or performance of experimental, developmental, or research work under that “funding agreement,” the recipient or subrecipient must comply with the requirements of 37 C.F.R. Part 401.
4. **Clean Air Act and Federal Water Pollution Control Act.** Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Act and Federal Water Pollution Control Act as amended for any Contract in excess of \$150,000.00.
5. **Debarment and Suspension.** Contractor acknowledges and warrants that it is not listed on the governmentwide exclusions in the System Award Management (SAM) Exclusions, in accordance with the OMB guidelines at 2 C.F.R. § 180 for “Debarment and Suspension.”
6. **Byrd Anti-Lobbying Amendment (31 U.S.C. § 1352).** For an award exceeding \$100,000, Contractors must file the required certification. Each tier certifies to the tier above that it will not and has not used Federal appropriated funds to pay any person or organization for influencing or attempting to influence an officer or employee of any agency, a member of Congress, officer or employee of Congress, or an employee of a member of Congress in connection with obtaining any Federal contract, grant or any other award covered by 31 U.S.C. § 1352. Each tier must also disclose any lobbying with non-Federal funds that takes place in connection with obtaining any Federal award. Such disclosures are forwarded from tier to tier up to the Town.

7. **Prohibition on Certain Telecommunications and Video Surveillance Services or Equipment.** The Contractor warrants that their systems or equipment are not covered under telecommunication equipment as described in Public Law 115-232.
8. **Domestic Preference for Procurements.** As appropriate and to the extent consistent with law, the Contractor will, to the greatest extent practicable under a federal award, provide a preference for the purchase, acquisition, or use of goods, products, or materials produced in the United States (including but not limited to iron, aluminum, steel, cement, and other manufactured products), as required under 2 C.F.R. § 200.322.
9. **Procurement of Recovered Material.** The Contractor agrees to comply with section 6002 of the Solid Waste Disposal Act, as amended by the Resource Conservation and Recovery Act. The requirements of Section 6002 include procuring only items designated in guidelines of the Environmental Protection Agency (EPA) at 40 C.F.R. Part 247 that contain the highest percentage of recovered materials practicable, consistent with maintaining a satisfactory level of competition, where the purchase price of the item exceeds \$10,000; procuring solid waste management services in a manner that maximizes energy and resource recovery; and establishing an affirmative procurement program for procurement of recovered materials identified in the EPA guidelines.
10. **Conflict of Interest.** The Contractor agrees to be bound by the Town's Uniform Guidance Conflict of Interest Policy, which is included herein by reference.
11. **Equal Employment Opportunity.** Except as otherwise provided under 41 CFR Part 60, all contracts that meet the definition of "federally assisted construction contract" in 41 CFR Part 60-1.3 include, by reference, the equal opportunity clause provided under 41 CFR 60-1.4(b). The Contractor agrees to abide by 41 CFR 60-1.4(b) during the performance of the contract¹.

¹ 60 CFR Part 60-1.4(b) can be accessed at: [https://www.ecfr.gov/current/title-41/subtitle-B/chapter-60/part-60-1/subpart-A/section-60-1.4#p-60-1.4\(b\)](https://www.ecfr.gov/current/title-41/subtitle-B/chapter-60/part-60-1/subpart-A/section-60-1.4#p-60-1.4(b))

EXHIBIT B
MINIMUM INSURANCE REQUIREMENTS

The Work under this Contract shall not commence until the Contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the Town. Except for Worker's Compensation and Professional Liability policies, the Town shall be named as additional insured on all policies. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the Town of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. **Worker's Compensation and Employer's Liability**

The Contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of \$100,000.

b. **Comprehensive General Liability Insurance**

The Contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the Contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury:	\$1,000,000 per occurrence/\$2,000,000 aggregate
Professional Liability:	\$1,000,000 per occurrence/\$2,000,000 aggregate
Property Damage:	\$1,000,000 per occurrence/\$2,000,000 aggregate

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the Work performed under the contract.

c. **Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the Contractor.

d. **Other Insurance**

The Contractor shall obtain such additional insurance as may be required by the Town or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

e. **Proof of Carriage**

The Contractor shall furnish the Town with satisfactory proof of carriage of the insurance required before written approval is granted by the Town.



MECKLENBURG COUNTY FIRE MARSHAL'S OFFICE

HYDRANT FLOW SHEET

DATE OF TEST: 5/24/2023 TIME OF TEST: 1300

ADDRESS OF TEST: Old Statesville Road & Harvest Point Dr

☒ PUBLIC

☐ PRIVATE

RESULTS:

STATIC PRESSURE	<u>68</u>
RESIDUAL PRESSURE	<u>62</u>
FLOW PRESSURE	<u>52</u>
COEFFICIENT USED	<u>0.9</u>
GALLONS PER MINUTE	<u>1210</u>
GPM @ 20' RESIDUAL	<u>3720</u>

ADDRESS OF 2nd HYDRANT: 16131 Old Statesville Road

☒ PUBLIC

☐ PRIVATE

Tested By: Randy Frazier-Deputy Fire Marshal

Seasonal Variations To Consider

Please note that this summary represents conditions observed at the time of the flow. Distribution system data can vary depending on system operating conditions and demands. Minimum static pressures are typically expected to occur during peak demand times. If there are system demand concerns, then the recommendation is to perform multiple hydrant flow tests at different times of the year. The peak system demands for Charlotte Water are typically between June and September. (Maximum month is typically July)

Date: September 28, 2023

Project Name: North Mecklenburg Park
Splash Pad
McAdams Project Number: HUN-22003
Meeting Location: North Mecklenburg Park
16131 Old Statesville Rd
Huntersville, NC 28078

AGENDA ITEMS

10:00 am – 11:00 am Project Scope

INTRODUCTIONS

Design Firm (Survey, Civil, Landscape/Hardscape):

The John R. McAdams Company (McAdams)

> Project Manager: Nick Lowe, RLA, ASLA
Senior Landscape Architecture (Charlotte)
704. 239. 5088 cell
nlowe@mcadamsco.com email

Designer's Consultants:

> Splash Pad Engineer: WTI (Beaver Dam, WI) Representative: Haley Conrad

> Electrical Engineer: Labella (Charlotte, NC) Representative: Bernie Stallings

PROJECT LOCATION:

North Mecklenburg Park
16131 Old Statesville Rd
Huntersville, NC 28078

FORM OF BIDS:

Formal – Single Prime

BRIEF OVERVIEW OF DOCUMENTS:

- > **Project Description:** Expansion of the existing park will include ADA access, repaired hardscape adjacent to the existing restroom, water line and sewer extensions, splash pad and required equipment, and landscaping.
- > **Drawings:** The title of the drawing set is “North Mecklenburg Park Splash Pad” dated July 28, 2023. No addenda have been issued to date. The first will include today’s meeting minutes, sign in sheet and answers to many of the questions and requests received thus far and will be issued in the coming days. Also included will be an addition to the bid proposal for submitting alternate splash pad manufacturer designs.
- > **Project Manual / Specifications:** There is a project manual of specifications entitled “North Mecklenburg Park Splash Pad Construction Drawings Specifications”.
- > **Alternates:**
 1. Two Additional Cantilevered Shade Sails
 2. Splash Pad Specialty Surface

FORMS REQUIRED FOR BIDS:

- > Forms
 - Bid Proposal Form
 - Non collusion Affidavit
 - Substitution Listing Form
 - 5% Bid Bond
- > Bidder’s Qualification Form Owner reserves the right to reject any or all bids for any reason.
- > Proposals shall be valid for 60 calendar days from Bid Opening.

PERFORMANCE AND PAYMENT BOND:

- > Required of successful bidder at 100% of contract amount, forms are bound in the Project Manual.

CONTRACT DOCUMENTS:

- > Insurance Certificates as required in Supplementary General Conditions
- > Instructions to Bidders and General Conditions of the Contract, and Supplementary General Conditions – all contained within the Project Manual.
- > Construction Documents (Drawings and Project Manual), any Addenda.

BID OPENING:

Bid Opening Location and Date: The Bid Opening meeting will be held at 2:00 pm on Tuesday, October 17th, 2023, at the 105 Gilead Road 3rd Floor Huntersville, NC. Bids will then be immediately opened and publicly read aloud. Bidders who do not wish to attend the Bid Opening Meeting shall have their proposals delivered to the Town of Huntersville Parks and Recreation Department, 105 Gilead Road, 3rd Floor, P.O. Box 2879, Huntersville, NC, 28070 (see Notice to Bidders) no later than 1:00 pm on Tuesday October 17th, 2023. Bids not received by the time noted herein will not be considered unless by Designer or Owner discretion.

CONSTRUCTION SCHEDULE

- > Duration: 140 days from notice to proceed (anticipated late November)
- > \$500 a day for

ADDENDA

- > All questions for designer must be submitted in writing by 5:00pm on Tuesday, October 10th, 2023.
- > All addenda must be acknowledged on bid form.

COMMUNICATIONS:

- > All questions shall be directed in writing to the Designer ([email provided. All questions answered via addendum through Town Bid portal](#)) unless the Designer states otherwise. Do not ask questions directly to Designer's consultants. Answers will be included in Addendum. Bidders are not to rely on verbal responses; no verbal response is official or binding until and unless it is reduced to writing in an addendum.

PRIMARY CONTACT:

- > Design Team: Nick Lowe, RLA (nlowe@mcadamsco.com)
- > Design Team Secondary/Backup: Morgan Landers, designer II (landers@mcadamsco.com)
 - o Always include Mr. Lowe AND Ms. Landers on ALL communications during this bid process

OWNER'S COMMENTS/REQUIREMENTS

NORTH MECK PARK SPLASHPAD PRE-BID SIGN-IN

NAME	PHONE	EMAIL	Firm
Caroline McClellan	336 944 4663	estimating@mmbuilding.com	Miles-McClellan
Jacoby McClellan	336 676 3816	estimatingnc@mmbuilding.com	" "
Danny Valle	757-546-4877	dvalle@summit-companies.com	Summit Engineering
Blythe Tegland	704-759-4575	blythe@carolina-recreation.com	Carolina Recreation Design
Hoss Hinson	704-233 0488	hossahosscontracting.com	Hoss Contracting
Johnny McAdor	704-598-0818	jmcador@halkcontracting.com	Halk Contracting Corp
Cory BUAER	704-880-9521	Cory@JDGoodrum.com	J D Goodrum
Dan Benedict	607-342-2048	dan@hostetterandson.com	Hostetter
George Kelley			
Adam Wright	850-865-2201	accessiblelandclearing@gmail.com	Beach Products by Water Ventures
Ryan McDuffee	704-288-7013	RYAN@CAROLINA PARK ANDRA.com	CAROLINA PARKS & Play
Sue Fink	704-483-5853	sfink@eaglewoodinc.com	Eagle Wood, Inc.
Eva Harris	704-634-7126	Eva@ConnerConstructs.com	Conner Const
Matt Schramm	201-566-1320	matt@churchichrecreation.com	Churchich Rec & Design
Cory Anderson	877-240-7333	Cory@80WestGroup.com	80 West Group
Sean Hare	704-713-3066	Sean.Hare@matksurf.com	Water Play Great Southern Rec

creating experiences through experience

ADDENDUM NUMBER TWO**Date: October 13, 2023****From: McAdams****Re: North Mecklenburg Park Splash Pad
16131 Old Statesville Rd.
Huntersville, NC 28078****NOTICE TO BIDDERS:**

Bidder is hereby notified that this Addendum shall become a part of the Contract Documents and shall be attached to the Project Manual for the Project.

The following items are intended to revise and clarify the Drawings and the Project Manual.

The bidder shall ensure that their Sub-Bidders are in full receipt of the information contained herein.

ADDENDA ITEMS:

PLAN SHEETS: Sheets C3.00, C3.01, C6.00, C6.01, C8.01, C8.03: RCP pipe changed to HDPE and additional details.

QUESTIONS

The following questions were received after the mandatory pre-bid meeting for the project. These answers are direct guidance to the bidders and will be reflected in the conformed set of contract documents upon which the project contract will be based. The changes made to the Project Manual and the Drawings are all derived from these responses to these questions.

1. Is there a proposed budget for the North Mecklenburg Splash Pad?

McAdams Response: NO

2. If Alternate Bid #2 is accepted for the splash pad coating, can the completion timeline be extended to allow for proper curing of the concrete? This is a manufacturer requirement of 30 days cure time before applying coating? (We would propose another 20 days on top of the current 140 day timeline)

McAdams Response: YES as long as we can open the pad for spring use in May.

3. Is there a test sheet of the flow inside the park confirming the amount of flow at the 2" water line?

McAdams Response: This was provided with addendum 1.

4. Will the owner be responsible for permits?

McAdams Response: NO

5. Is the contractor responsible for paying tap and development fees associated with the water and sewer installation?

McAdams Response: YES

6. The grading plans show 12" RCP to dome grates. Can you provide a detail on how the RCP pipe is to attach to the proposed nyoplast drain basins? Or is the storm drainpipe to be HDPE?

McAdams Response: All drainage pipe has been changed to HDPE see detail on sheet C8.02 for detail.

7. Is compacted ABC required under the standard duty concrete Paving?

McAdams Response: NO if soil compaction requirements from the detail are achieved.

Questions and requests received but not yet addressed will be addressed as a part of the next Addendum (Addendum 3).

All additional comments and any additional questions must be submitted to Nick Lowe nlowe@mcadamsco.com

Sincerely,

MCADAMS

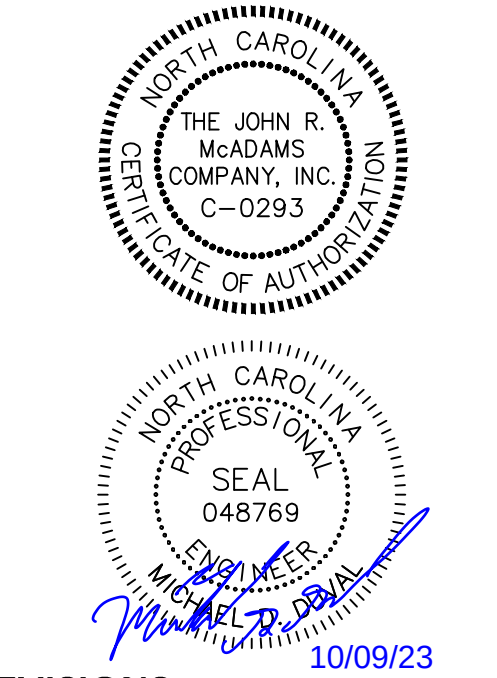


Nick Lowe, RLA, ASLA
Senior Landscape Architect

CLIENT
TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS		
NO.	DATE	REVISIONS PER CITY 1ST COMMENTS
1	10.09.2023	

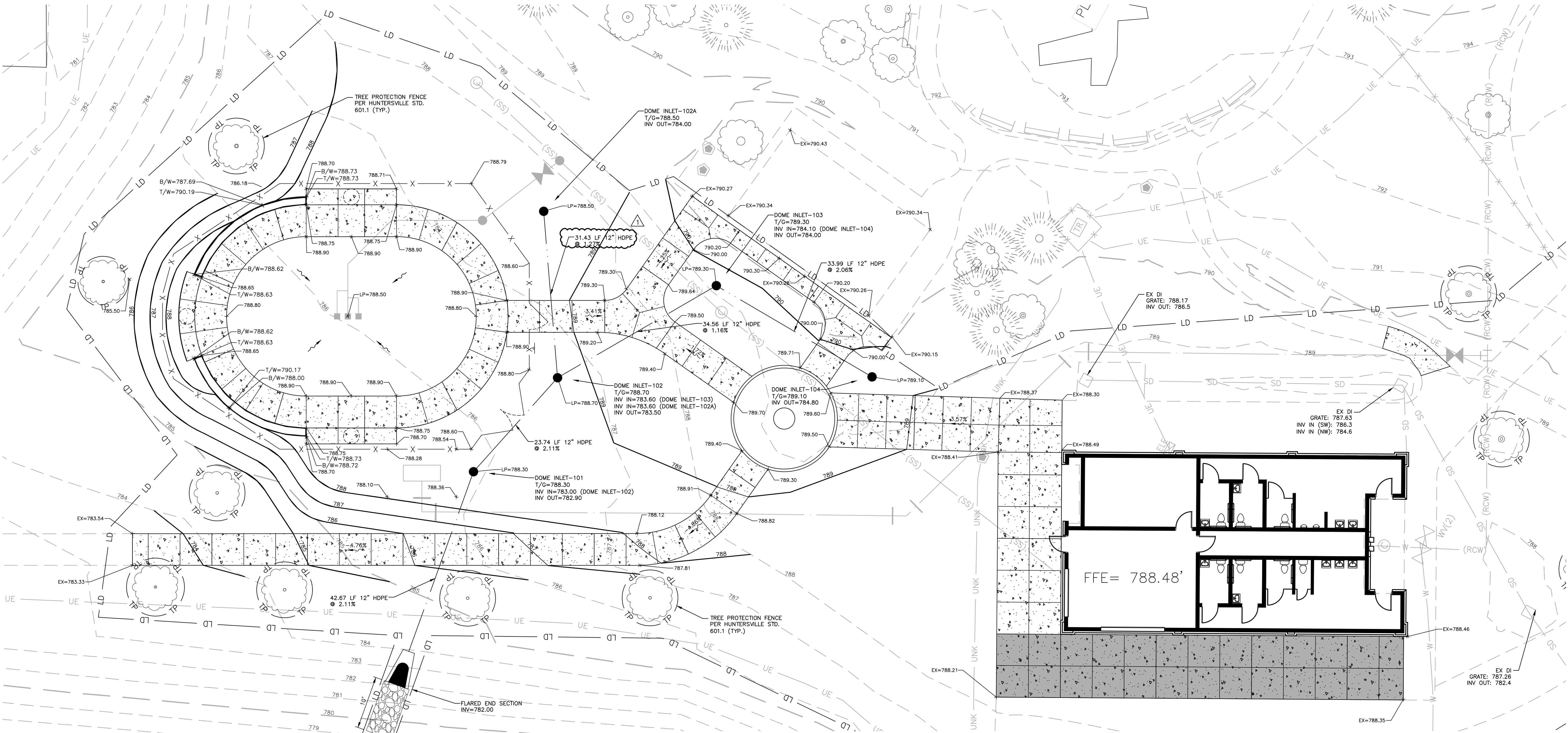
PLAN INFORMATION

PROJECT NO.	HUN-22003
FILENAME	HUN22003-G3-North Mecklenburg Park.dwg
CHECKED BY	MDD
DRAWN BY	JRD
SCALE	1"=10'
DATE	07/28/2023

SHEET

GRADING PLAN

C3.00



GRADING LEGEND	
	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF-RAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
	LINE BREAK SYMBOL
	TOP & BOTTOM CURB ELEVATIONS
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION (NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
	LOW POINT SPOT ELEVATION
	HIGH POINT SPOT ELEVATION
	SPOT ELEVATION
	STORM DRAINAGE
	STORM SERVICE LINE
	ROOF DRAIN, 8" ADS NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
	TREE PROTECTION FENCE PER HUNTERSVILLE STD. 601.1 (TYP.)
	LIMITS OF DISTURBANCE
	WOODED AREA
	MAJOR CONTOUR
	MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EASEMENT LINE
	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

GENERAL NOTES:
1. THE IMPERVIOUS AREA ON THIS SITE WILL BE DETAINED BY THE FUTURE BMP BEING INSTALLED FOR THE NORTH MECKLENBURG PARK GREENWAY PROJECT

EXISTING CONDITIONS LEGEND

Ⓒ	SANITARY SEWER MANHOLE	—SD—	STORM DRAIN PIPE
Ⓒ	SANITARY SEWER CLEANOUT	—OU—	OVERHEAD UTILITY LINES
Ⓒ	WATER VALVE	—W—	WATER LINE
Ⓒ	WATER METER	—SS—	SANITARY SEWER LINE
Ⓒ	FIRE HYDRANT	—T—	TELEPHONE LINE
Ⓒ	TELEPHONE PEDESTAL	—G—	GAS LINE
Ⓒ	TELEPHONE MANHOLE	—UE—	UNDERGROUND ELECTRIC
Ⓒ	ELECTRIC BOX	—UT—	UNDERGROUND TELEPHONE
Ⓒ	LIGHT POLE	—X—X—	FENCE LINE
Ⓒ	POWER POLE		
Ⓒ	CURB INLET		
Ⓒ	STORM DRAINAGE MANHOLE		
Ⓒ	YARD INLET		
Ⓒ	GREASE PIT		
Ⓒ	SIGN		
Ⓒ	WATER MANHOLE		
Ⓒ	FIBER OPTIC VAULT		

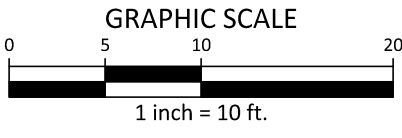
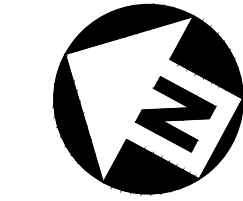


0 5 10

GRAPHIC SCALE



CONTRACTOR SHALL NOTIFY "NC311" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC311". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

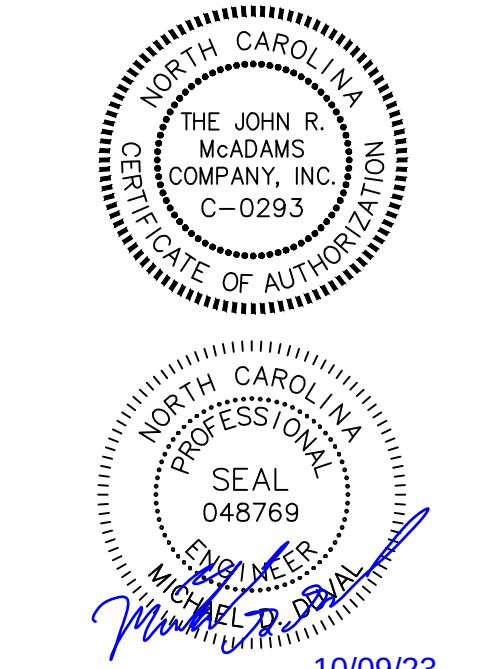


PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

CLIENT
TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



**NORTH MECKLENBURG PARK
SPLASH PAD**
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS		
NO.	DATE	REVISIONS PER CITY 1ST COMMENTS
1	10. 09. 2023	

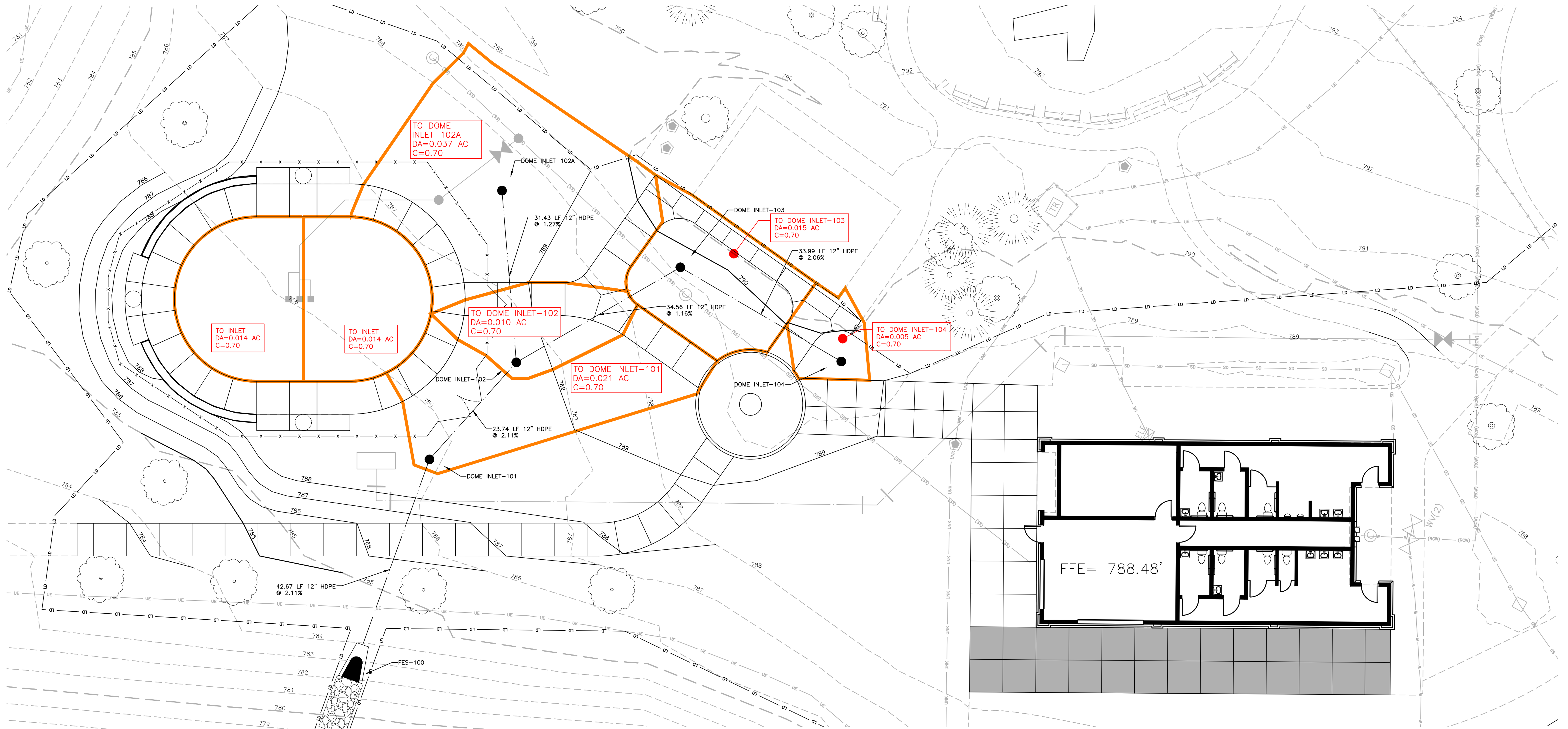
PLAN INFORMATION

PROJECT NO.	HUN-22003
FILENAME	HUN22003-DA1-North Mecklenburg Park.dwg
CHECKED BY	MDD
DRAWN BY	JRD
SCALE	1"=10'
DATE	07/28/2023

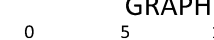
SHEET

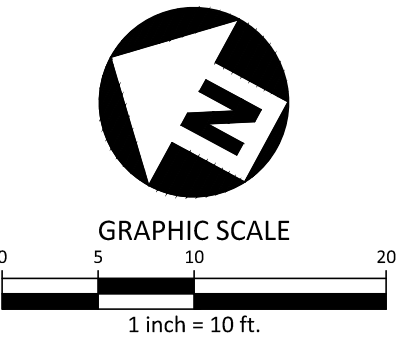
DRAINAGE AREA MAP

C3.01



GRADING LEGEND	
	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF-DRAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
	LINE BREAK SYMBOL
	TOP & BOTTOM CURB ELEVATIONS
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION
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	HIGH POINT SPOT ELEVATION
	SPOT ELEVATION
	STORM DRAINAGE
	STORM SERVICE LINE
	ROOF DRAIN, 8" ADS
	NON-PERFORATED TUBING OR EQUAL 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
	TREE PROTECTION FENCE
	LIMITS OF DISTURBANCE
	WOODED AREA
	MAJOR CONTOUR
	MINOR CONTOUR
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	EASEMENT LINE
	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

EXISTING CONDITIONS LEGEND				
	SANITARY SEWER MANHOLE		SD	STORM DRAIN PIPE
	SANITARY SEWER CLEANOUT		OU	OVERHEAD UTILITY LINES
	WATER VALVE		W	WATER LINE
	WATER METER		SS	SANITARY SEWER LINE
	FIRE HYDRANT		T	TELEPHONE LINE
	TELEPHONE PEDESTAL		G	GAS LINE
	TELEPHONE MANHOLE		UE	UNDERGROUND ELECTRIC
	ELECTRIC BOX		UT	UNDERGROUND TELEPHONE
	LIGHT POLE		X	FENCE LINE
	POWER POLE			
	CURB INLET			
	STORM DRAINAGE MANHOLE			
	YARD INLET			
	GREASE PIT			
	SIGN			
	WATER MANHOLE			
	FIBER OPTIC VAULT			
				GRAPHIC SCALE



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

CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED. CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811". REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

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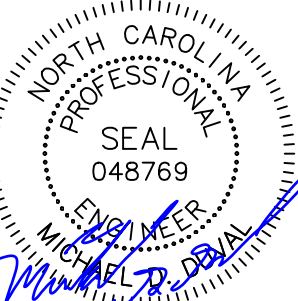


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NORTH CAROLINA

NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

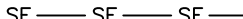
PLAN INFORMATION

SHEET

EROSION & CONTROL PLAN STAGE I

C6.00



	SILT FENCE OUTLET
	INLET PROTECTION
	INLET PROTECTION FOR EXISTING STRUCTURES
	CHECK DAM
	EMBANKMENT MATTING
	SILT FENCE
	TREE PROTECTION FENCE
	LIMITS OF DISTURBANCE
	WOODED AREA

DEMOLITION LEGEND

	TREE OR OTHER VEGETATION TO BE REMOVED
	UNDERGROUND UTILITY TO BE REMOVED
	AREA TO BE REMOVED (SIDEWALK, CURB AND GUTTER, STRUCTURES, ASPHALT, CONCRETE PAVING, ETC.)

NOTE: SEE PLAN FOR DETAILED DEMOLITION PROCEDURES,
SEQUENCING AND SPECIFICATIONS.

CONTRACTOR TO COORDINATE ALL UTILITY DISCONNECTS
REQUIRED ON EXISTING STRUCTURES THAT ARE TO BE
DEMOLISHED. (FEEL FREE TO RE-WORD AS YOU SEE FIT.)

GROUND STABILIZATION		
SITE AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
PERMITTER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES STEEPER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERMITTEES AND HQW ZONES)

DISTURBED AREA =0.82 AC.

GRADING LEGEND

	FLARED END SECTION
	ENDWALL SECTION
	CATCH BASIN
	DROP INLET
	STORM SERVICE INLET
	STORM SERVICE ROOF--DRAIN
	JUNCTION BOX
	DRAINAGE FLOW ARROW
	LINE BREAK SYMBOL
	TOP & BOTTOM CURB ELEVATIONS
	TOP OF WALL ELEVATION
	BOTTOM OF WALL ELEVATION
	(NOTE: BOTTOM OF WALL IS GROUND ELEVATION NOT WALL FOUNDATION)
	LOW POINT SPOT ELEVATION
	HIGH POINT SPOT ELEVATION
	SPOT ELEVATION
	STORM DRAINAGE
	STORM SERVICE LINE
	ROUGH DRAIN, 8" ADS
	NON--PERFORATED TUBING OR EQUAL, 1.0% MIN. SLOPE 3' MIN. COVER PVC SCHEDULE 40 IN TRAFFIC AREAS
	TREE PROTECTION FENCE
	LIMITS OF DISTURBANCE
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	MINOR CONTOUR
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	EXISTING MINOR CONTOUR
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	ACCESSIBLE PARKING AREA (2% MAX. SLOPE IN ALL DIRECTIONS)

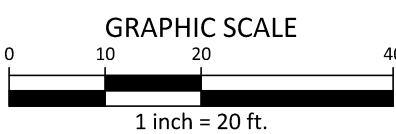
EXISTING CONDITIONS LEGEND

⑤	SANITARY SEWER MANHOLE	—SD—	STORM DRAIN PIPE
⑥	SANITARY SEWER CLEANOUT	—OU—	OVERHEAD UTILITY LINES
W	WATER VALVE	—W—	WATER LINE
SS	WATER METER	—SS—	SANITARY SEWER LINE
T	FIRE HYDRANT	—T—	TELEPHONE LINE
U	TELEPHONE PEDESTAL	—G—	GAS LINE
⑦	TELEPHONE MANHOLE	—UE—	UNDERGROUND ELECTRIC
⑧	ELECTRIC BOX	—UT—	UNDERGROUND TELEPHONE
α	LIGHT POLE	—X—X—	FENCE LINE
⑨	POWER POLE		
⑩	CURB INLET		
⑪	STORM DRAINAGE MANHOLE		
⑫	YARD INLET		
⑬	GREASE PIT		
⑭	SIGN		
⑮	WATER MANHOLE		
⑯	FIBER OPTIC VAULT		



GRAPHIC SCALE

0 10 20



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THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811".
REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



The John R. McAdams Company, Inc.
2100 South Tryon Street
Suite 400
Charlotte, NC 28203
phone 704. 527. 0800
fax 919. 361. 2269
license number: C-0293, C-187

www.mcadamsco.com

CLIENT

TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO.	DATE	
1	10. 09. 2023	REVISIONS PER CITY 1ST COMMENT.

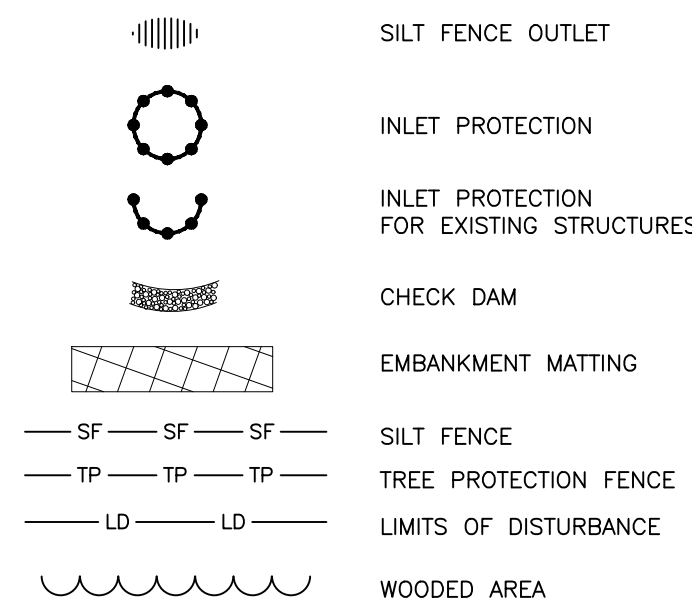
PLAN INFORMATION

PROJECT NO. HUN-22003
FILENAME HUN22003-EC1-North Mecklenburg Park.dwg
CHECKED BY MDD
DRAWN BY JRD
SCALE 1"=20'
DATE 07/28/2023

SHEET

EROSION & CONTROL PLAN STAGE II

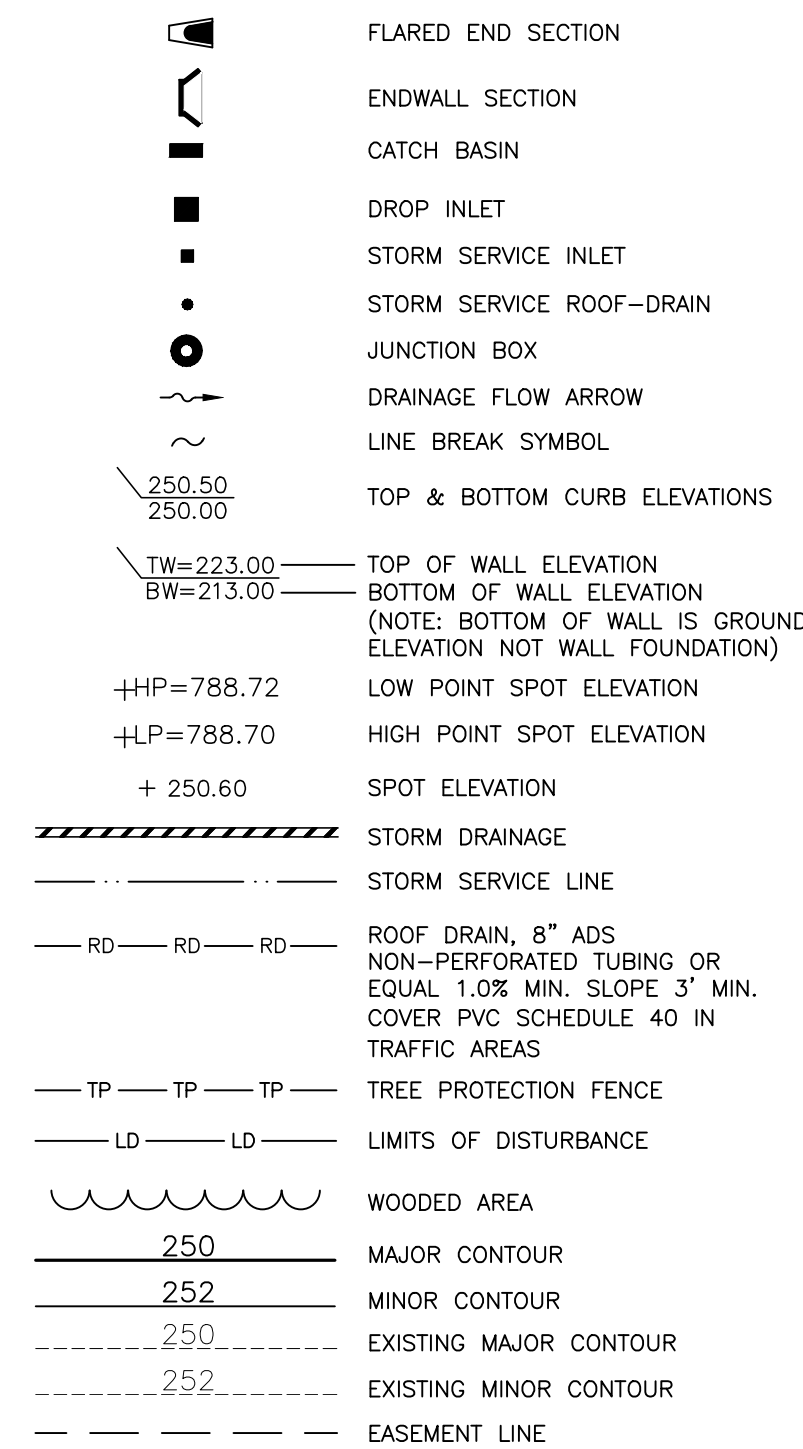
C6.01



GROUND STABILIZATION		
PERMIT AREA DESCRIPTION	STABILIZATION TIME FRAME	STABILIZATION TIME FRAME EXCEPTIONS
SIDE DITCHES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (H2O) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10' OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED
SLOPES 3:1 OR FLATTER	14 DAYS	7-DAYS FOR SLOPES GREATER THAN 50 FEET IN LENGTH
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE (EXCEPT FOR PERIMETERS AND HOW ZONES)

DISTURBED AREA = 0.82 AC.

GRADING LEGEND

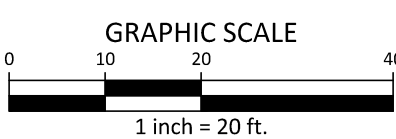


EXISTING CONDITIONS LEGEND

⊙	SANITARY SEWER MANHOLE	—SD—	STORM DRAIN PIPE
⊙	SANITARY SEWER CLEANOUT	—OU—	OVERHEAD UTILITY LINES
⊗	WATER VALVE	—W—	WATER LINE
⊗	WATER METER	—SS—	SANITARY SEWER LINE
⊗	FIRE HYDRANT	—T—	TELEPHONE LINE
⊗	TELEPHONE PEDESTAL	—G—	GAS LINE
⊗	TELEPHONE MANHOLE	—UE—	UNDERGROUND ELECTRIC
⊗	ELECTRIC BOX	—UT—	UNDERGROUND TELEPHONE
⊗	LIGHT POLE	—X—X—	FENCE LINE



CONTRACTOR SHALL NOTIFY "NC811" (811) OR (1-800-632-4949) AT
AT LEAST 3 FULL BUSINESS DAYS PRIOR TO BEGINNING CONSTRUCTION
OR EXCAVATION TO HAVE EXISTING UTILITIES LOCATED.
CONTRACTOR SHALL CONTACT ANY LOCAL UTILITIES THAT PROVIDE
THEIR OWN LOCATOR SERVICES INDEPENDENT OF "NC811".
REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.



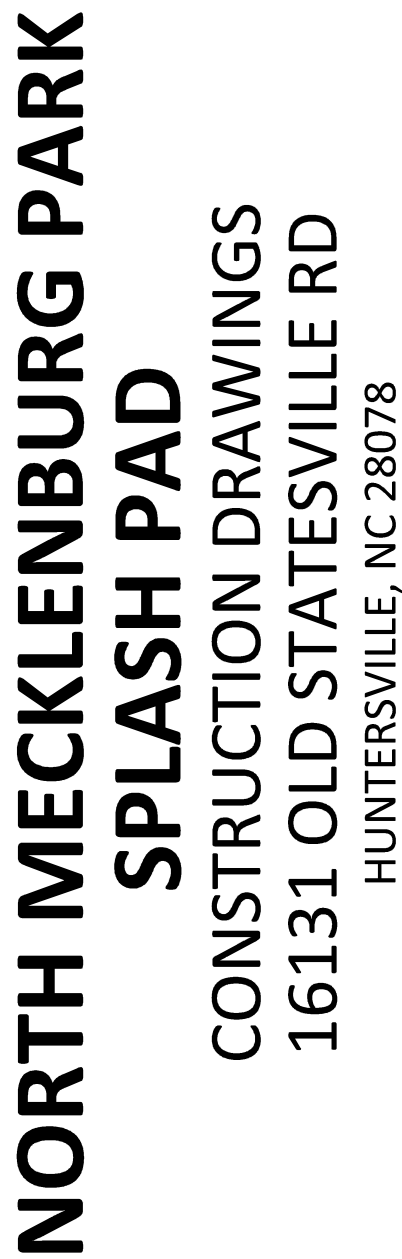
PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION

M:\Projects\HUN\HUN2003\04-Production\Planning and LA\Construction Drawings\Current Drawings\HUN2003-EC1-North Mecklenburg Park.dwg, 10/12/2023 2:41:39 PM, Jackson DeWeese



www.mcadamsco.com

TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



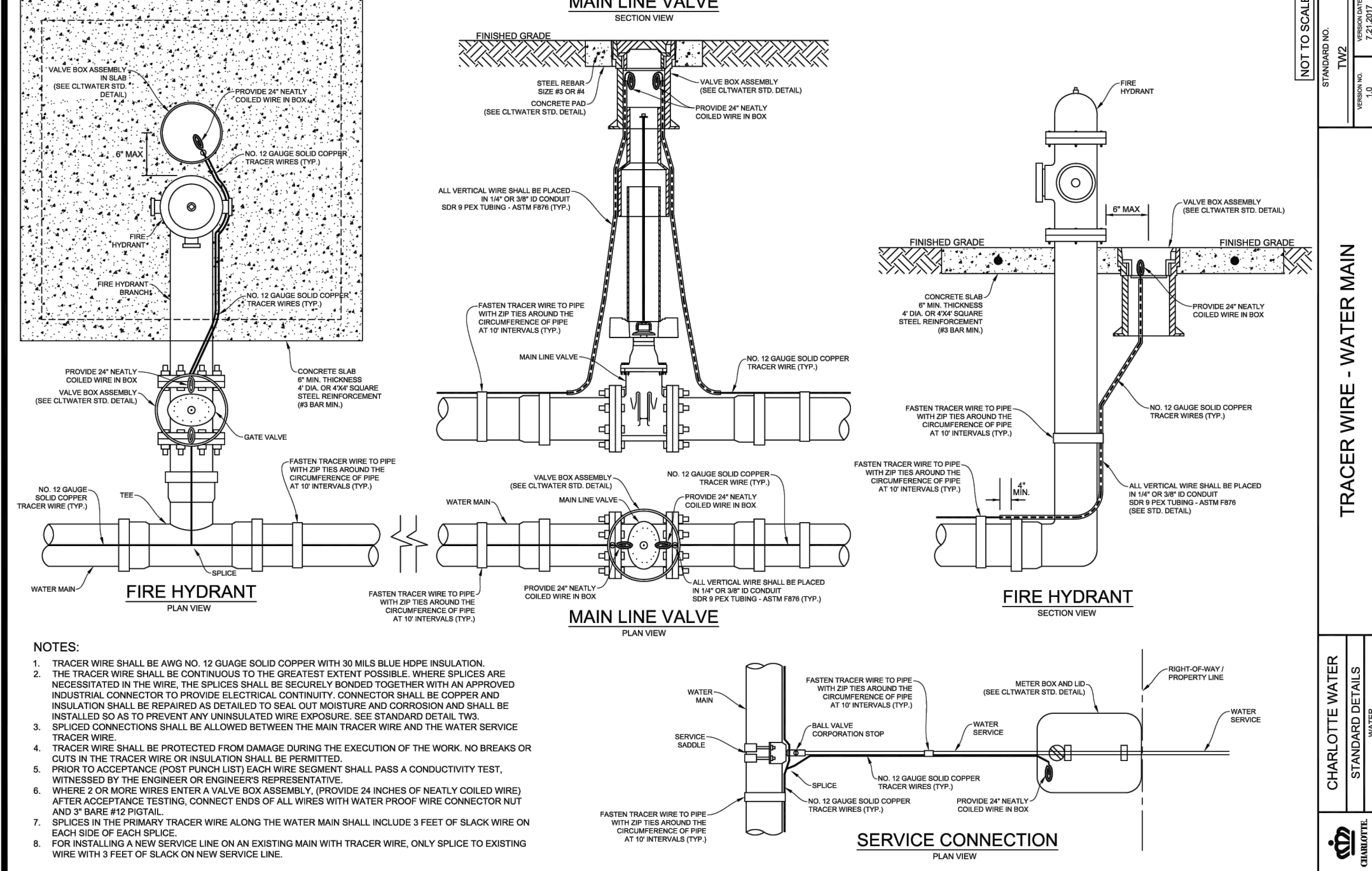
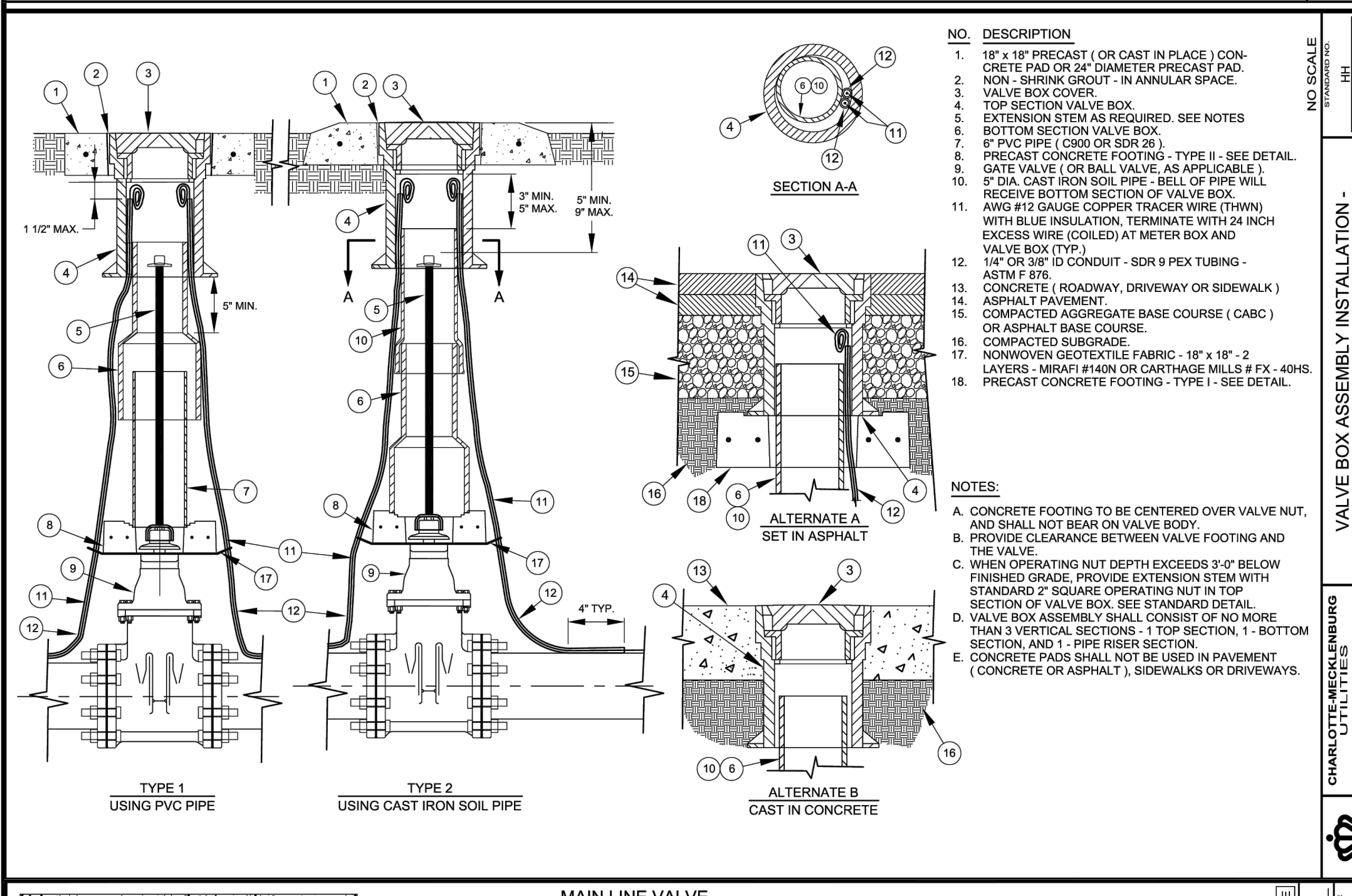
PLAN INFORMATION

WATER DETAILS

WATER DETAILS

C8.01

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



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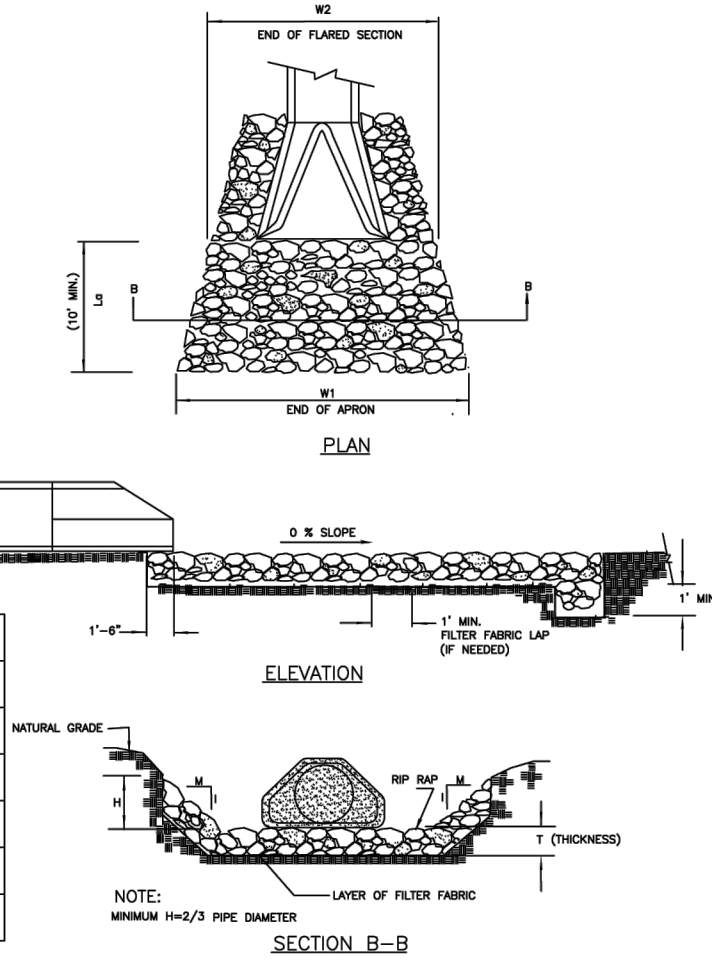
NOTES:

1. CLASS OR MEDIAN SIZE OF RIPRAP AND LENGTH, WIDTH AND DEPTH OF APRON TO BE DESIGNED BY THE ENGINEER.
2. REFER TO THE CHARLOTTE-MECKLENBURG STORM WATER DESIGN MANUAL FOR RIPRAP APRON DESIGN STANDARDS.
3. RIPRAP SHOULD EXTEND UP BOTH SIDES OF THE APRON AND AROUND THE END OF THE PIPE OR CULVERT AT THE DISCHARGE OUTLET AT A MAXIMUM SLOPE OF 2:1 AND A HEIGHT NOT LESS THAN TWO TIMES THE PIPE DIAMETER OR CULVERT HEIGHT.
4. THERE SHALL BE NO OVERTFLOW FROM THE END OF THE APRON TO THE SURFACE OF THE RECEIVING CHANNEL. THE AREA TO BE PAVED OR RIPRAPPED SHALL BE UNDERCUT SO THAT THE INVERT OF THE APRON SHALL BE AT THE SAME GRADE (ELONG) WITH THE SURFACE OF THE RECEIVING CHANNEL. THE APRON SHALL HAVE A CUTOFF OR TOE WALL AT THE DOWNSTREAM END.
5. THE WIDTH OF THE END OF THE APRON SHALL BE EQUAL TO THE BOTTOM WIDTH OF THE RECEIVING CHANNEL. MAXIMUM TAPER TO RECEIVING CHANNEL 5:1.
6. ALL SUBGRADE FOR STRUCTURE TO BE COMPACTED TO 95% OR GREATER.
7. THE PLACING OF FILL, EITHER LOOSE OR COMPACTED IN THE RECEIVING CHANNEL SHALL NOT BE ALLOWED.
8. NO BENDS OR CURVES IN THE HORIZONTAL ALIGNMENT OF THE APRON WILL BE PERMITTED.
9. FILTER FABRIC SHALL BE INSTALLED ON COMPACTED SUBGRADE PRIOR TO PLACEMENT OF RIP RAP.
10. ANY DISTURBED AREA FROM END OF APRON TO RECEIVING CHANNEL MUST BE STABILIZED.

USE USDA NOMOGRAPH FROM NC SEDIMENT AND EROSION CONTROL MANUAL OR CHARLOTTE-MECKLENBURG STORM WATER DESIGN MANUAL FOR DESIGN DATA.

RIPRAP SUMMARY CHART							
OUTLET	Lo	W1	W2	H	d50	dmax	*T
FES-100	10'	5'	5'	5'	3"	4.5"	6.75'

* d50 (mm) = 8.06 d50 (inches) NC SEDIMENT AND EROSION CONTROL MANUAL.
dmax = 1.5 x d50
T = 12 x dmax

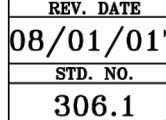


NOT TO SCALE



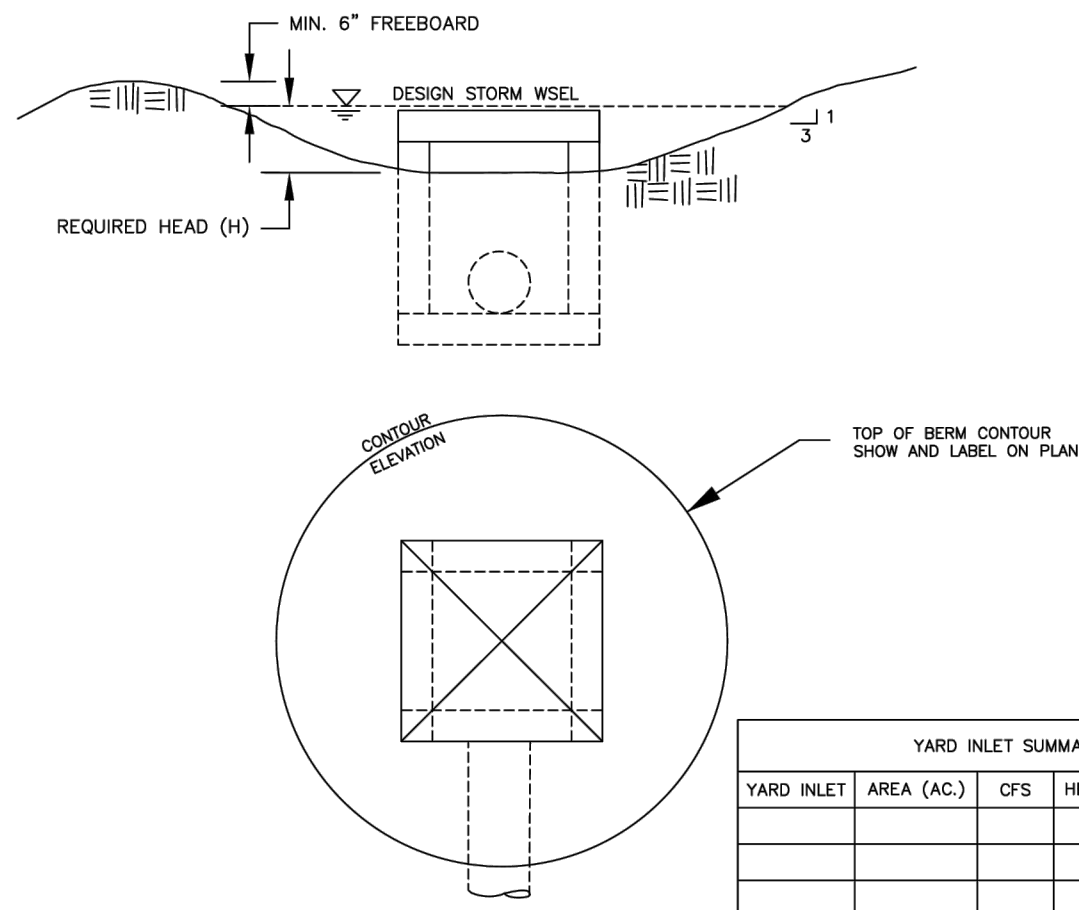
STANDARD
DRAWING

RIPRAP APRON AT PIPE OUTFALLS
OTHER THAN SWIM



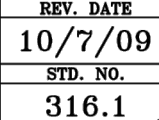
STANDARD
DRAWING

GRADING AT DROP INLET



YARD INLET SUMMARY CHART				
YARD INLET	AREA (AC.)	CFS	HEAD H (FT.)	COMMENT

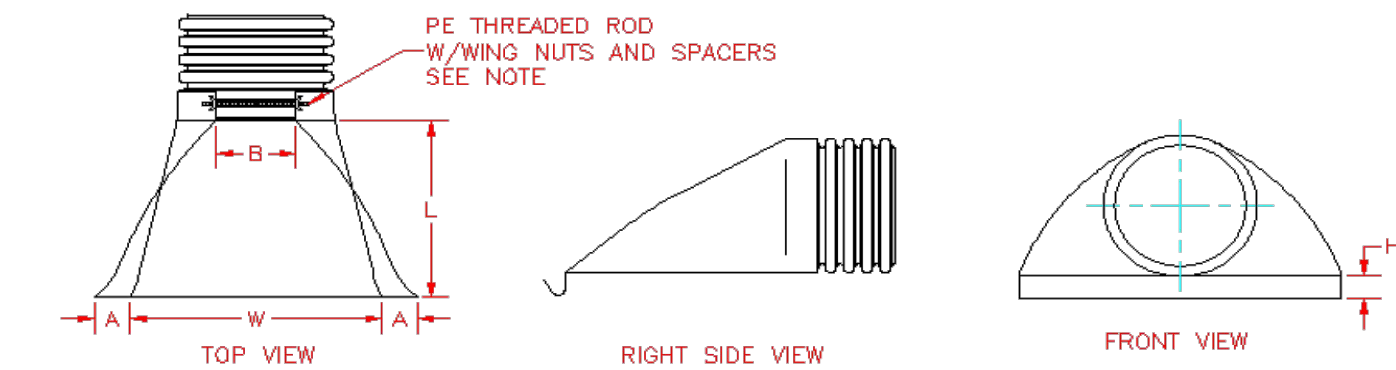
NOT TO SCALE



STANDARD
DRAWING

NOTE: ALL DIMENSIONS ARE NOMINAL.
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FLARED END SECTIONS



PART #	PIPE SIZE	A	B(MAX)	H	L	W
101SNP	10 in (250 mm)	3.8 in (95 mm)	10.0 in (254 mm)	6.5 in (165 mm)	28.0 in (711 mm)	34.5 in (878 mm)
121SNP	12 & 15 (300 & 375mm)	6.5 in (165 mm)	10.0 in (254 mm)	6.5 in (165 mm)	25.0 in (635 mm)	29.0 in (737 mm)
181ONP	18 in (450 mm)	7.5 in (191 mm)	15.0 in (381 mm)	6.5 in (165 mm)	32.0 in (813 mm)	35.0 in (889 mm)
241ONP	24 in (600 mm)	7.5 in (191 mm)	18.0 in (457 mm)	6.5 in (165 mm)	36.0 in (914 mm)	45.0 in (1143 mm)
301SNP	30 in (750 mm)	7.5 in (191 mm)	12.0 in (305 mm)	8.6 in (218 mm)	58.0 in (1473 mm)	63.0 in (1600 mm)
361SNP	36 in (900 mm)	7.5 in (191 mm)	25.0 in (635 mm)	8.6 in (218 mm)	58.0 in (1473 mm)	63.0 in (1600 mm)



DRAWING #	6879
DRAWN BY	JCB
APPROVED BY	JCB
REVISIONS	JCB



McAdams

The John R. McAdams Company, Inc.
2100 South Tryon Street
Suite 400
Charlotte, NC 28203
phone 704.527.0800
fax 919.361.2269
license number: C-0293, C-187

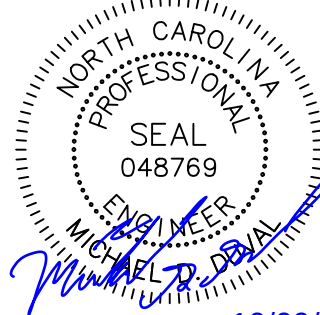
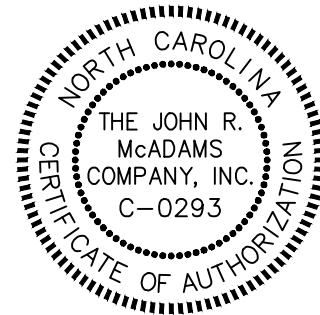
www.mcadamsco.com

CLIENT

TOWN OF HUNTERSVILLE
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
PHONE: 704. 875. 6541



NORTH MECKLENBURG PARK
SPLASH PAD
CONSTRUCTION DRAWINGS
16131 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078



REVISIONS

NO.	DATE	REVISIONS PER CITY 1ST COMMENTS
1	10. 09. 2023	

PLAN INFORMATION

PROJECT NO.	HUN-22003
FILENAME	HUN22003-D1-North Mecklenburg Park.dwg
CHECKED BY	MDD
DRAWN BY	JRD
SCALE	N/A
DATE	07/28/2023

SHEET

STORM DETAILS

C8.03

PRELIMINARY DRAWING - NOT RELEASED FOR CONSTRUCTION



NORTH MECKLENBURG PARK SPLASH PAD

Construction Drawings Specifications

September 1, 2023

Project No. HUN-22003



2100 South Tryon Street, Suite 400, Charlotte, NC 28203 • 704. 527. 0800

DOCUMENT 000102 – TABLE OF CONTENTS

Division	Section Title	Pages
DIVISION 00 – PROCUREMENT AND CONTRACTING REQUIREMENTS		
000101	Project Title Page	1
000102	Table of Contents.....	2
000107	Seals Page	1
.....	Invitation to Bid	1
.....	Instructions to Bidders.....	6
.....	Bid Proposal	2
.....	Substitution Listing	1
.....	Non-Collusion Affidavit.....	1
.....	Bidder's Qualification Requirements Form	1
.....	Example Construction Contract.....	12
DIVISION 01 - GENERAL REQUIREMENTS		
011000	Summary	2
012600	Contract Modification Procedures	4
012900	Payment Procedures.....	8
013100	Project Management and Coordination	5
013200	Construction Progress Documentation	4
013300	Submittal Procedures	9
014000	Quality Requirements.....	5
015000	Temporary Facilities and Controls	5
015639	Temporary Tree and Plant Protection	8
016000	Product Requirements.....	2
017300	Execution	5
017310	Cutting and Patching.....	4
017419	Construction Waste Management and Disposal	3
017700	Closeout Procedures.....	6
017839	Project Record Documents	4
DIVISION 03 - CONCRETE		
033000	Cast-in-Place Concrete.....	19
DIVISION 13 – SPECIAL CONSTRUCTION		
131113	Pool General	6
131114	Pool Start-Up Maintenance & Operations Training.....	2
131118	Pool Concrete	9
131120	Pool Pipe and Pipe Fittings	6
131123	Pool Pipe Supports.....	3
131124	Pool Valves.....	4
131147	Pool Play Equipment.....	7
131162	Spray Pad Floor Finish- Alternate Bid	5

DIVISION 22 – PLUMBING

221313	Facility Sanitary Sewers	7
221423	Storm Drainage Piping Specialties	2

DIVISION 31 - EARTHWORK

311000	Site Clearing	7
312000	Earth Moving	16
312317	Trenching	7
312319	Dewatering	6
312500	Erosion and Sedimentation Control.....	7

DIVISION 32 - EXTERIOR IMPROVEMENTS

321313	Concrete Paving	13
321373	Concrete Paving Joint Sealants	4
321400	Unit Paving	5
329113	Soil Preparation	11
329119	Landscape Grading.....	4
329200	Turf and Grasses	10
329300	Plants	14

DIVISION 33 - UTILITIES

331415	Site Water Distribution Piping	9
334200	Stormwater Conveyance	6

END OF SECTION 000102

SECTION 000107 - SEALS PAGE

1.1 DESIGN PROFESSIONALS OF RECORD

A. Landscape Architect:

1. Arthur Nicholas Lowe.
2. License No. NC 1959.
3. Responsible for:
 - a. Section 033000 "Cast-In-Place Concrete."
 - b. Division 32 Sections

B. Civil Engineer:

1. Michael D. Duval.
2. License No. NC 048769.
3. Responsible for:
 - a. Division 22 Sections
 - b. Division 31 Sections
 - c. Division 33 Sections

C. Electrical Engineer:

1. James M. Henderson.
2. License No. NC 16329.
3. Specifications provided in the drawing set.

D. Plumbing Engineer:

1. Brian w. Freber
2. License No. NC 035471.
3. Responsible for:
 - a. Division 13 Sections

END OF SECTION 000107

INVITATION TO BID

FOR THE CONSTRUCTION OF NORTH MECKLENBURG PARK SPLASH PAD PROJECT

Town of Huntersville, North Carolina

Sealed, single prime bids for the construction of a splash pad and surrounding hardscape with associated demolition / clearing, grading, erosion control, installation of stormwater conveyance measures, utilities, furnishings, and landscape. Bids for the project will be received by the Town of Huntersville Parks and Recreation Department, 105 Gilead Road, 3rd Floor, Huntersville, NC, 28078 until **2:00 PM, local time, Day, October 17, 2023**, and there at said office, at said time. Bid Proposals will be received for:

THE CONSTRUCTION OF NORTH MECKLENBURG PARK SPLASH PAD
FOR
HUNTERSVILLE PARKS AND RECREATION

The Bid Package, consisting of the Invitation to Bid, Instructions to Bidders, Bid Proposal Form, Non-collusion Affidavit, Substitution Listing Form, General Conditions of the Contract, and Contract Drawings may be obtained from the Huntersville Parks and Recreation Department, 105 Gilead Road, 3rd Floor, Huntersville, NC, or may be accessed at the following web address: www.huntersville.org. Contract documents will not be mailed to Bidders.

Copies of the Contract Documents may be examined at the Huntersville Department of Recreation, Huntersville, North Carolina 28078.

Each Bid must be accompanied by cash, cashier's check, certified check on a bank or trust company insured by the Federal Deposit Insurance Corporation or Bid Bond in the amount not less than five percent (5%) of the amount of the Bid in the form and subject to the conditions provided in the Information for Bidders.

1. The Contract Drawings for this Project were provided to the Town by McAdams. If awarded, the Project will be awarded to the lowest responsive, responsible Bidder, taking into account quality, performance and time specified in the Contract Documents.

A pre-bid meeting shall be held on **Day, September 28th, 2023, at 10:00 AM** at the project site located at 16131 Old Statesville Road, Huntersville, NC 28078. Meet at the shelter near the 1st playground. Any questions regarding this meeting should be directed to Michael Jaycocks, Director of Parks and Recreation at 704-766-2228.

The Town of Huntersville ("Town") reserves the right to waive any minor deviations in the Bid Proposal and to reject any or all Bid Proposals.

END OF INVITATION TO BID

INSTRUCTIONS TO BIDDERS

Project Designer: McAdams
2100 South Tryon Street
Suite 400
Charlotte, NC 28203
704.527.0800

PLEASE NOTE: ALL QUESTIONS REGARDING THE CONTRACT DRAWINGS, AND THE CONSTRUCTION SPECIFICATIONS INDICATED ON SAID DRAWINGS SHOULD BE DIRECTED TO THE PROJECT DESIGNER. ALL QUESTIONS AND ANSWERS PROVIDED WILL BE POSTED ON THE TOWN'S WEBSITE AS AN ADDENDUM TO THE CONTRACT DOCUMENTS. BIDDERS WILL BE RESPONSIBLE FOR ENSURING THAT THEY HAVE RECEIVED AND RELIED UPON ALL ADDENDA FOR THE PROJECT IN SUBMITTING THEIR BIDS.

1. **FAMILIARITY WITH WORK AND CONDITIONS:** Before preparing Bid Proposals, Bidders are urged to visit the site of the Project to inform and familiarize themselves with all conditions involved and under which the Project is to be constructed or apparatus erected or installed. The Town of Huntersville will not be responsible to the Contractor for payments other than as set out in the contract price, should conditions be different than those assumed or contemplated by the Contractor. The Contractor is required to satisfy himself, before bidding, as to the correctness of the site as indicated by the plans.
2. **FAMILIARITY WITH LAWS, ETC.:** The Bidder is assumed to have made himself familiar with all Federal, State, and Local Laws, ordinances and regulations which may in any manner affect those engaged or employed in work or the materials or equipment in or upon the work, or in any way affect the conduct of the work, and no pleas of misunderstanding will be considered on account of the ignorance thereof. If the Bidder or Contractor shall discover any provisions in the plans, specifications, or contract which are contrary or inconsistent with any such law, ordinance, or regulation, he shall forthwith report it to the Project Designer in writing before the bid opening.
3. **INTERPRETATIONS OF PLANS:** If any prospective Bidder is in doubt as to the true meaning of any part of the plans, or other proposed contract documents, he may submit to the Project Designer, a written request for an interpretation thereof, who will either answer or secure an answer based upon their relative expertise. The person submitting such request will be responsible for its prompt delivery. Note, requests for clarification or interpretation must be submitted no later than **5:00 PM on October 10th, 2023**. Any interpretation of the proposed documents will be made only by addendum duly issued and posted on the Town's website. The Project Designer will not be responsible for any other explanations or interpretations of the proposed document. The Contractor shall acknowledge receipt of all addenda in the space provided in the Bid Proposal.
4. **CONTRACT DOCUMENTS:** The Contract Documents consist of the Invitation to Bid, Instructions to Bidders, Bid Proposal Form, Non-collusion Affidavit, Substitution Listing, all Addenda issued, the Contract Drawings, the Town's Standard Form Contract, the General Conditions of the Construction Contract, and all exhibits and attachments incorporated by reference to any of the Contract Documents.

5. **BID PROPOSAL FORM:** Each Bidder must submit a Bid Proposal on the blank forms herewith provided including: Bid Proposal Form, Non-collusion Affidavit, and Substitution Listing Form and Bidder's Qualification Form. Each Bidder must include both the Bid Proposal Form and the Non-collusion Affidavit with their Bid Proposal, otherwise the Bid Proposal will not be considered. Each Bidder shall sign his Bid Proposal correctly by one duly authorized and Bid Proposals may be rejected if they show any omissions, alterations of form, additions not called for, or other irregularities of any kind. Conditioning and unbalancing of bids will not be permitted.
6. **BID PROPOSAL REPRESENTATIONS:** Submission of a Bid Proposal Form shall be a representation of the Bidder of all of the following:
 - a. The Bidder has carefully examined the CONTRACT DOCUMENTS and fully understands them.
 - b. The Bidder has carefully examined the site or sites of the Project and is familiar with the conditions under which the Work, or any part of it, is to be done, and the conditions which must be fulfilled in the furnishing and/or erection or construction of any or all items of the Project.
 - c. The Bidder has the financial means and stability to provide all materials and all necessary tools, machinery, and all means necessary to do all the Work in the manner prescribed in the Contract Documents and according to the Plans and the requirements of the Town of Huntersville, in a workmanlike manner, consistent with the standards of the profession in and around Huntersville.
 - d. The Bid has been made without connection with any other person, company, or parties making a similar Bid Proposal, and that it is in all respects fair and in good faith, without collusion or fraud.
 - e. The Bidder understands that it is the intention of the Town of Huntersville, North Carolina, to award the Contract on the basis of Bid Proposals received at this letting, however, the Town reserves the right to reject any or all bids.
 - f. If the Bid Proposal is made by a Corporation or Contractor, the Bid Proposal Form has been signed by its proper officers or members, as applicable, in a legal manner and its official address stated therein.
 - g. The Bidder will enter into the Town's Construction Agreement, included as part of the Contract Documents, and will perform all of the work necessary for the construction of facilities outlined in the CONTRACT DOCUMENTS for the Town of Huntersville, North Carolina, for the bid price stated in the Bid Proposal Form.
 - h. The Bidder has received and completely understood the Addenda and the bid price stated in the Bid Proposal Form reflects all Addenda.

7. SUBMISSION OF BID PROPOSALS: It is the responsibility of each Bidder, without excuse, to ensure that their Bid Proposal is submitted at the right place by the deadline. Each Bid Proposal must be submitted in a sealed envelope, to indicate its contents without being opened. The name of the Bidder, his address and his license number must be marked on the outside of the envelope. **This envelope shall be placed in another one** addressed to the attention of Michael Jaycocks, Town of Huntersville Recreation Department, 105 Gilead Road, 3rd Floor, Huntersville, North Carolina, 28078, and if forwarded otherwise than by mail, must be delivered to Mr. Michael Jaycocks at the above address. If the mail is delayed beyond the date and hour set for the Bid Proposal opening, proposals thus delayed will not be considered. The outer envelope must also state the Project Name and the name of the Bidder. Bid Proposals will be accepted until 2:00 PM on the date of the Bid Proposal Opening. Bid Proposals submitted after this time cannot be accepted.
8. OPENING OF BID PROPOSALS: Bid Proposals will be opened publicly and read promptly at the time, on the date, and at the place set forth in the "Invitation to Bid". Bidders or their authorized agents and other interested parties are invited to be present. The Bid Proposal shall be deemed valid for a period of sixty (60) calendar days after the opening thereof. The Bidder may request to withdraw their Bid Proposal in writing, received prior to the time for opening of the Bid Proposals, directed to the Town of Huntersville. Bid Proposals may be withdrawn after the opening of the Bid Proposals **for unintentional and substantial arithmetic errors or omissions pursuant to N.C.G.S. § 143-129.1 only (not for mistakes in judgment)** if the request is made in writing to and received by Michael Jaycocks, Huntersville Parks and Recreation Director, within seventy-two hours after the time for opening Bid Proposals. Such written request of withdrawal must include sufficient documentation of the clerical error or math computational error.
9. AWARDING OF CONTRACT: If awarded, the Town of Huntersville, North Carolina will award the contract conditioned upon funds being made available for such construction. If awarded, the contract will be awarded to the lowest, responsive, responsible Bidder taking into account quality, performance, and time specified in the Contract Documents. Consideration will be given only to Bid Proposals of contractors who are experienced in the class of work proposed and who can refer to projects of similar magnitude and/or character as have been completed by them. The Town also reserves to itself the right to reject any or all Bid Proposals and to waive minor informalities or technicalities, as it may deem to be in the Town's best interest.
10. EXECUTION OF CONTRACT: The successful Bidder will be required to enter into the Town's Standard Form Contract, included as part of this Project Manual, and must execute the Contract no later than ten (10) consecutive calendar days following receipt of the Notice of Award from the Town. Failure of a Bidder to execute the Contract within said ten (10) day period shall result in the forfeiture of the bidder's bid bond as described below.
11. CHECKS, CASH, OR BID BOND: Each proposal must be accompanied by a Bid Bond executed by a corporate surety licensed under the laws of North Carolina to execute such bonds, conditioned that the surety will, upon demand for with make payment to the Owner if the bidder fails to execute the Contract. The Bid Bond shall be in the amount of five percent (5%) of the total bid plus all of the alternates. The Bid Bond shall be valid for a minimum of ninety (90) calendar days. In lieu of a Bid Bond, a deposit equal to five percent (5%) of the total bid plus all alternates in the form of a Cashier's Check or Certified Check on some bank or trust

company insured by the Federal Deposit Insurance Corporation and payable to the Town of Huntersville may be provided. The purpose of the Bid Deposit or Bid Bond is to ensure that the bidder will enter into a Contract with the Owner with the terms stipulated in the Bid Proposal and the bidder guarantees that a Performance, Labor and Material will be executed. If the Contractor fails to execute a Contract, the Bid Bond or Bid Deposit shall be forfeited to the Town. Bid security shall be submitted separately for each project bid.

12. **PERFORMANCE BOND:** The successful Bidder shall provide a performance bond equal to 100% of the contract sum and shall conform to the Town's requirements. Bond/surety shall be provided in a form as noted in item 11 above.
13. **PAYMENT BOND:** The successful Bidder shall provide a payment bond equal to 100% of the contract sum and shall conform to the Town's requirements. Bond/surety shall be provided in a form as noted in item 11 above.
14. **COORDINATION OF WORK:** During the performance of the contract, it shall be the responsibility of the successful Bidder to pursue the orderly progress of all work stages throughout the Project and to assure that all work is completed within the time period stipulated herein as the Contract Period. In executing the duties incurred by these responsibilities, the successful Bidder shall provide sufficient executive and supervisory staff in the field to enable efficient and expeditious progress of the work. The Town relies upon the organization, management, skill, cooperation, and efficiency of the successful Bidder to supervise, direct, control and manage the work and the efforts of the sub-contractors so as to deliver the intended construction to the Contract Documents and within the scheduled time.
15. **LIQUIDATED DAMAGES:** The successful Bidder is required to complete the Project as outlined in the Project progress schedule and as defined by the Contract Period. Should the successful Bidder fail to assure the completion of the total Project satisfactorily within the time period specified in the contract, the successful Bidder shall be charged with liquidated damages at a rate of **Five Hundred Dollars (\$500.00) per calendar day** until the total Project is successfully completed.

If in the event the successful Bidder is granted substantial completion by the Project Designer and fails to complete and/or correct all of the remaining list of items to be corrected within 30 days of the date of substantial completion, the successful Bidder shall be charged with **liquidated damages at a rate of Five Hundred Dollars (\$500.00) per calendar day** until all of the remaining items on the list are completed and corrected and approved by the Project Manager or Project Designer.

The successful Bidder shall indemnify the Town for any claim or legal action against the Town by any subcontractor or supplier as a result of injury or damages caused by that Contractor to others, including paying judgements against the Town, all costs and expenses, legal or otherwise, incurred by the Town in defending the suit.

16. **CONTRACT REDUCTION:** The Town retains the exclusive right to reduce any or all of the scope of work within the Contract Documents after award of the contract for budgetary or other reasons. Should the Town choose to reduce any or all of said scope of work, the successful Bidder shall not be allowed any claims for anticipated profit or overhead on such deleted work.
17. **CONTRACTOR'S LICENSE:** All Bidders must possess a valid North Carolina General Contractors License to do work in North Carolina as required by N.C.G.S. Chapter 87, plus any other applicable licenses. A copy of these requirements is included in the bid documentation.
18. **TIME OF CONSTRUCTION:** The Successful Bidder shall begin work on the date specified in the Notice to Proceed and shall pursue all necessary phases of construction in order to substantially complete the base bid work within **150 consecutive calendar days**. This time of construction shall be defined as the Contract Period.
19. **CONSTRUCTION SCHEDULES:** The Contractor, promptly after being awarded the Contract, shall prepare and submit for the Town and Project Designer's information, a construction schedule. The construction schedule shall be a detailed bar chart or Critical Path Method, for the Work to be performed. The schedule shall not exceed time limits current under the Contract Documents and shall include weather delays and delays due to delivery of the equipment. The schedule shall be related to the entire Project to the extent required by the Contract Documents and shall provide for expeditious and practicable execution of Work.

The Contractor shall maintain the construction schedule, making monthly adjustments, updates, and corrections. The construction schedule shall be reviewed at each construction meeting.

The Contractor shall also prepare a schedule of submittals which shall be coordinated with the Contractor's construction schedule. The submittal schedule shall also be reviewed at each construction meeting and adjusted as necessary.

The following chart is the anticipated adverse weather delays for this project.

Jan	Feb	Mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec
10	10	11	6	6	6	6	5	6	6	7	9

The construction schedule shall reflect the anticipated adverse weather delays.

National Oceanic and Atmospheric Administration (NOAA) data shall be used to claim additional construction days beyond the above chart for critical path activities. Weather days occurring on holidays or Sundays will not be considered as delays significant to the Contract completion date. The request for a weather delay must be submitted to the Consultant in writing with supporting data within (20) days following the occurrence.

The Contractor shall allocate sufficient resources to meet the current construction schedule.

20. TECHNICAL SPECIFICATIONS. Technical specifications are included both on the Contract Drawings themselves, and within the Project Manual and are included in the bid documents. It is up to each Bidder to satisfy themselves that these technical specifications are sufficient to enable them to perform the Work. If a Bidder determines that the technical specifications are not sufficient, the Bidder should pose appropriate questions to the Project Manager who will secure answers from the Project Designer. All such inquiries and answers will be put out in the form of an Addendum prior to the time for opening bids.
21. SUBSTITUTIONS: Requests for approval of substitutions for specified products or “or equal” or “equivalent” submittals other than those listed as acceptable products will be considered only upon submission of samples and manufacturers’ data, in triplicate, of both the product specified and the product intended for substitution. All such requests for substitutions must be received for consideration by the Project Designer no later than 10 business days prior to the Bid Proposal opening. All substitutions approved will be put into an Addendum. The Town reserves the right to consider and accept any and all substitutions proposed in determining the lowest responsible bidder.

END OF INSTRUCTIONS TO BIDDERS

BID PROPOSAL

SINGLE PRIME GENERAL CONSTRUCTION CONTRACT BID PROPOSAL

NORTH MECKLENBURG PARK SPLASH PAD

ALTERING THE FACE OF THIS FORM IN ANY MANNER, OR PROVIDING INFORMATION NOT SPECIFICALLY REQUESTED SHALL RENDER THIS BID PROPOSAL NON-RESPONSIVE AND INELIGIBLE FOR CONSIDERATION BY THE TOWN.

Date: _____

TO: Town of Huntersville, North Carolina

To Whom It May Concern:

The undersigned Bidder, having examined carefully the site, the Invitation to Bid, Instructions to Bidders, Construction Drawings, the form Construction Agreement, Supplementary Documents (if any) and subsequent Addenda (as acknowledged herein) for the construction of a splash pad and pedestrian hardscape areas with associated demolition/clearing, grading, erosion control, installation of utilities, stormwater conveyance measures, and landscaping. Bidder hereby proposes to furnish all labor, materials, equipment, and services necessary to perform the Work required in the Construction Documents and terms of this Proposal for the amounts listed below.

Base Bid Total: \$ _____
(Lump Sum)

Town reserves the right to award contract based on Base Bid only, or combination of Base Bid and any/all of the Alternate Bid Items below. The Bidder shall indicate if the Alternate is an add or deduct for the overall bid. If the Alternate is left blank, then the Alternate will not change the Base Bid if accepted. The Bidder agrees to provide the Alternates as described in the Contract Documents for the following prices:

Alternate #1 – Two Additional Cantilevered Shade Sails: Add \$ _____ (Lump Sum)

Alternate #2 – Splash Pad Specialty Surface: Add \$ _____ (Lump Sum)

Unit Prices		
Description	Unit	Unit Price
Undercut of Unsuitable Soils	CY	
Mass Rock Removal as describe in	CY	
Trench Rock as Removal	CY	
Unit prices quoted and accepted shall apply throughout the life of the contract, except as otherwise specifically noted. Unit prices shall be applied, as appropriate, to compute the total value of changes in the base bid quantity of the work all in accordance with the contract documents.		

The undersigned further agrees that this Bid Proposal shall be valid for a period of sixty (60) days from the date of receipt of the Bid Proposal and that if this Bid Proposal is accepted by the Town within this period, the Bidder will execute the Construction Agreement provided as part of the Contract Documents.

The undersigned further agrees to begin the work promptly upon receipt of the Notice to Proceed and to pursue the work with an adequate work force to complete the work within 120 calendar days from receipt of the Notice to Proceed. Liquidated Damages of \$500.00 per calendar day are hereby agreed upon as an assessment from the Contractor for failure to complete the work within the time period stated herein.

The undersigned Bidder further proposes and agrees to commence the work promptly upon notice, with an adequate force to satisfactorily complete the Project.

The undersigned acknowledges receipt of the following addenda which will be considered as part of the Contract Documents.

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

Addendum No. _____ Dated _____

CONTRACTOR: _____
(Company)

Contractor ☐ is or ☐ is not a historically underutilized business, registered with the North Carolina Office of Historically Underutilized Businesses. (Must be completed by all Bidders.)

ADDRESS: _____

BY: _____
(Signature) (Typed Name)

TITLE: _____

NC General Contractor's License No. _____

NC State Sales and Use Tax Registration _____

☐ Non-collusion Affidavit has been completed and is attached to this Bid Proposal Form (Required)
Note: Inclusion of the non-collusion affidavit is mandatory. A bid will be rejected as non-responsive if not included in the bid submission.

Select One (one or the other must be chosen by the Bidder):

☐ Substitution Listing (if substitutions are being proposed) is attached to this Bid Proposal Form.
Note: Failure to include the Substitution Listing with this Bid Proposal will render the substitutions ineligible for consideration by the Town.

OR

☐ Substitution Listing is not attached to this Bid Proposal Form (No substitutions are proposed.)

SUBSTITUTION LISTING

TO: Town of Huntersville, North Carolina
Hereinafter called "Town"

1. A Bidder requesting a substitution must submit this form to the Project Manager and Project Landscape Architect at least five (5) business days prior to the time stated for Bid Opening.

2. Pursuant to bidding requirements for the Work titled:

NORTH MECKLENBURG PARK

SPLASH PAD

FOR HUNTERSVILLE PARKS AND RECREATION

The Contract Sum proposed by the under signed on the Bid Proposal form is for the Work as shown on the Drawings, and otherwise defined in the Contract Documents. However, the undersigned proposes the following substitutions for the Town's consideration. Should the Town accept any or all of the proposed substitutions, the Bidder's proposed contract sum will be reduced by the amount shown.

3.	Specified Product Or Material	Drawing Number	Proposed Substitution	Proposed Reduction In Contract Sum
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____
	_____	_____	_____	_____

PROVIDE SIGNATURE
IDENTICAL TO THAT
SHOWN ON THE BID FORM

BIDDER:

By _____

END OF SUBSTITUTION LISTING

Standard Form Contract
NON-COLLUSION AFFIDAVIT

I, on behalf of the Bidder, being first duly sworn or as the Contractor, do hereby represent on behalf of the Bidder that the Bid Proposal submitted was made without collusion or fraud and that neither I, nor anyone else affiliated with the Bidder to my knowledge, have offered or received any kickbacks or inducements from any other supplier, manufacturer or subcontractor in connection with their Bid Proposal, and neither I, nor anyone else affiliated with the Bidder to my knowledge, have conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.

This the _____ day of _____, 2023.

BIDDER: _____

Print Name:

Print Title:

State of _____

County of _____

Sworn to or subscribed before me this the _____ day of _____, 2023.

(Official Seal)

Notary Public

Print Name: _____

QUALIFICATION REQUIREMENTS FORM

In order to be considered for this project, the Contractor must meet the following minimum qualification requirements

- A. The companying bidding on the project shall have been in business for at least 5 years, and been the prime contractor, and have performed similar types of splash pad projects.
- B. Be a licensed North Carolina General contractor.
- C. Company and/or principals of firm must not have been assessed liquidated damages on similar type of projects in the past 3 years.
- D. Be capable of providing performance and payment bonds as specified in the contract.
- E. Be able to provide the insurance required by the Contractor and all the subcontractors that will be on site.
- F. Provide at least three (3) splash pad projects completed by the Contractor with reference names and phone numbers.

I have read and understand all sections of the Bidder's Qualifications. This page must be submitted with bid.

Signed By: _____

Title:(Owner, Partner or Corporate President or Vice President only) _____



Parks and Recreation
105 Gilead Road, Suite 300
Huntersville, NC 28078
(704) 766-2220

CONTRACT FOR CONSTRUCTION SERVICES

CONTRACTOR: **Contractor Name**

Address 1

City, State Zip

Contact Name

Contact Email

PROJECT:

**North Mecklenburg Park
Splash Pad**

SITE

LOCATION(S):

**16131 Old Statesville Road
Huntersville, NC 28078**

This Contract for Construction and Repair, and all exhibits, (collectively this "Contract") is entered into this _____ day of _____, 20____ by and between the Town of Huntersville, a municipal corporation of the State of North Carolina, (the "Town") and _____ located at _____ (the "Contractor").

WITNESSETH:

That for and in consideration of the mutual promises set forth in this Contract, the sufficiency of which is acknowledged by the parties hereto, the parties do mutually agree as follows:

- Scope of Services. The Contractor agrees to perform for the Town the services according to the following construction design drawings, plans, and specifications, which is incorporated herein by reference as Exhibit C. The Contractor agrees to provide the labor, service, equipment, and materials, and other services included in Exhibit C, which shall constitute the "Work." The Contractor warrants that the Contractor has visited the location of the project and is familiar with all field conditions bearing upon the Contractor's performance of the Work; that the materials and equipment furnished under the Contract are of good quality and new (unless otherwise permitted); that the Work meets or exceeds the standards ordinarily observed in the industry; and that the Work conforms to the requirements of the Contract and to all applicable codes, ordinances, laws, or regulations. The Contractor further warrants and promises that the Work shall be free from defects and nonconformities in materials and workmanship for a period of one year from the later of the "Date of Completion" or such date as the Contractor actually completes all the Work. During such period, the Contractor will remedy at Contractor's expense any nonconformities or defects in the Work within a reasonable time after receiving notice thereof from the Town.
- Fees: Fees for the Work shall be specified in a fee schedule attached hereto as Exhibit D, (the "Contract Price").
- Change Orders. The Contractor agrees that the Town may order changes to the general scope of the Work, including additions, deletions, and similar revisions ("Change Orders"). The parties agree to

adjust the Contract Price to reflect the effects of such changes. These changes shall be authorized only upon execution of a written Change Order. The amount of any increase or decrease in the Contract Price shall be by mutual acceptance of a total amount supported by sufficient data and information to substantiate the change. If the Town and Contractor do not mutually agree on the amount of the change in the Contract Price, the Contractor will proceed with the Work described in the Change Order and the Town will pay the reasonable costs of any additional work as determined by the Town, including a reasonable amount for the Contractor's overhead and profit. Any decrease in Contract Price for a decrease in the Work will be the reasonable costs of the Work deleted as determined by the Town, including a reasonable amount for the decrease in the Contractor's overhead. The Contractor may submit claims for an increase in the Contract Price or an extension of the Date of Completion by means of a written Change Request. The Contractor agrees to submit the Change Request within a reasonable time after the event giving rise to the requested change and before the Contractor undertakes any additional work. Upon receipt of a Change Request, the Town, at its sole discretion, shall inform the Contractor whether to proceed with the additional work and shall approve any adjustment in the Contract Price or Date of Completion by issuing a Change Order as provided above. The timely submission of a written Change Request shall be a condition precedent to the issuance of a Change Order, and the Town will have no obligation to pay the Contractor for additional work performed by the Contractor without a Change Order approved in writing by the Town.

4. Historically Underutilized Businesses (HUB). It is the policy of the Town of to provide minorities and women equal opportunity for participating in all aspects of the Town's contracting and procurement programs, including but not limited to employment, construction development projects, materials/services contracts and/or lease agreements, consistent with the laws of the State of North Carolina.
5. Personal Protective Equipment (PPE). The Contractor and his/her employees will wear the proper equipment such as, but not limited to, high visibility clothing, safety glasses, hearing protection, etc. at all times when performing the Work at the Site Location(s). Failure to be in the appropriate PPE will result in removal from the project site.
6. Contract Insurance. Contractor shall be required to purchase and maintain, during its performance under this Contract, insurance coverage as shown on the Insurance Requirements as stated in Exhibit B, which is incorporated herein by reference. All insurance purchased shall have a specific endorsement, copy of which shall be provided to the Town, naming the Town as an additional insured and providing that such insurance will not be cancelled without providing thirty (30) days advance written notice to the Town.
7. Working Drawings and Specifications at the Job Site. The Contractor shall maintain, in readable condition at his job site one complete set of working drawings and specifications for his work including all shop drawings. Such drawings and specifications shall be available for use by the owner, designer, or his authorized representative. The Contractor shall also maintain at the job site, a day-to-day record of work-in-place that is at variance with the contract documents. Such variations shall be fully noted on Project drawings by the Contractor and submitted to the designer upon Project completion and no later than 30 days after acceptance of the Project.
8. Materials, Equipment, Employees. The Contractor shall, unless otherwise specified, supply and pay for all labor, transportation, materials, tools, apparatus, lights, power, fuel, heat, sanitary facilities, water, scaffolding and incidentals necessary for the completion of the work, and shall install, maintain and remove all equipment of the construction, other utensils or things, and be responsible for the safe, proper and lawful construction, maintenance and use of same, and shall construct in the best and most workmanlike manner, a complete job and everything incidental thereto, as shown on

the plans, stated in the specifications, or reasonably implied therefrom, all in accordance with the contract documents.

9. Cleaning Up and Restoration of Site. The Contractor shall keep the sites and surrounding area reasonably free from rubbish at all times and shall remove debris from the site from time to time or when directed to do so by the Owner. Before final inspection and acceptance of the Project, the Contractor shall thoroughly clean the sites, and completely prepare the Project and site for use by the Owner. At the end of construction, the Contractor shall oversee and implement the restoration of the construction site to its original state. Restoration includes but not limited to walks, drives, lawns, trees and shrubs, corridors, stairs, and other elements shall be repaired, cleaned, or otherwise restored to their original state.
10. Protection of Work, Property, the Public, and Safety. The Contractor shall be solely responsible for the entire site and the building or construction of the same and provide all the necessary protections, as required by the owner or designer, and by laws or ordinances governing such conditions. The Contractor shall be responsible for any damage to the owner's property or of that of others on the job, by them, their personnel, or their subcontractors, and shall make good such damages. The Contractor shall be responsible for and pay for any damages caused to the owner.
11. As-Built Marked-Up Construction Documents. Contractor shall provide one complete set of legible "as-built" marked-up construction drawings and specifications recording any and all changes made to the original design during the course of construction. In the event no changes occurred, submit construction drawings and specifications set with notation "No Changes." The Designer/Owner must receive "As-built" marked-up construction drawings and specifications before the final pay request can be processed.
12. Retainage. Retainage on periodic or final payments on public construction contracts in which the total project costs are \$100,000 or more are allowed pursuant to N.C.G.S. § 143-134.1.
13. Addendums: If applicable, Contractor acknowledges that it has received, executed, and shall abide by any addendums issued by the Town prior to this Contract.
14. Standard Terms and Conditions. The Standard Terms and Conditions, attached hereto as Exhibit A, shall be a part of this Contract. The Standard Terms and Conditions are hereby incorporated by reference, and all parties agree to be bound thereby.
15. Contract Term. Work will begin within ten (10) days of receipt of the Notice to Proceed from the Town. The Contractor and the Town recognize that time is of the essence for completion of the Work. Any Notice to Proceed shall also contain a date that the Contractor shall complete the Work by (the "Date of Completion"). The terms of this Contract shall apply to every Notice to Proceed issued by the Town. The Contractor shall complete all necessary phases of construction in order to substantially complete the base bid work within 150 consecutive calendar days. This time of construction shall be defined as the Contract Period.
16. Liquidated Damages. Contractor and Town recognize that time is of the essence and that Town will suffer financial and other losses if the Work is not completed by the Date of Completion, plus any extensions thereof allowed in accordance with the Contract. The parties also recognize the delays, expense, and difficulties involved in proving in a legal or arbitration proceeding the actual loss suffered by Town if the Work is not completed on time. Accordingly, instead of requiring any such proof, Town and Contractor agree that as liquidated damages for delay (but not as a penalty) Contractor shall pay Town \$500 for each day that expires after the end of the Date of Completion (as duly adjusted pursuant to the Contract) until the Work is complete.
17. Payment for Work In consideration of the above Work, the Town will pay the Contractor the sum as further described on Exhibit D.

In witness thereof, the contracting parties, by their authorized agents, affix their signatures and seals at Huntersville, North Carolina, this _____ day of _____, 20_____.

Contractor

Town of Huntersville

Name:

Name of Contractor (type or print)

Town Manager

By:

(Signature)

Attest: _____
Town Clerk

Title:

This instrument has been pre-audited in the manner required by the Local Government Budget and Fiscal Control Act

Attest:

(Secretary, if a corporation)

Finance Director

EXHIBIT A
STANDARD TERMS & CONDITIONS

1. **Acceptance.** Contractor's acknowledgment of the terms of this Contract constitutes an agreement to: (i) all terms and conditions set forth or referenced herein, (ii) on any attachments hereto, (iii) any applicable solicitation documentation related to this Contract (including without limitation any request for proposals or invitation for bids or Contractor's response thereto) that deal with the same subject matter as this Contract, and (iv) any other terms and conditions of a written agreement signed by Contractor and the Town that deals with the same subject matter as this Contract (collectively, the "Contract Documents"). The terms and provisions set forth in the Contract Documents shall constitute the entire agreement between Contractor and the Town with respect to the purchase by the Town of the: (i) goods ("Goods") and/or (ii) services provided or work performed ("Services") as described in the Contract Documents. The agreements set forth in the Contract Documents are sometimes referred to herein as the "Contract." In the event of any conflict between any terms and conditions of the Contract Documents, the terms and conditions most favorable to the Town shall control. No additional or supplemental provision or provisions in variance herewith that may appear in Contractor's quotation, acknowledgment, invoice, or in any other communication from Contractor to the Town shall be deemed accepted by or binding on the Town. The Town hereby expressly rejects all such provisions which supplement, modify, or otherwise vary from the terms of the Contract Documents, and such provisions are superseded by the terms and conditions stated in the Contract Documents, unless and until the Town's authorized representatives expressly assent, in writing, to such provisions. Stenographic and clerical errors and omissions by the Town are subject to correction.
2. **Entire Agreement.** These terms and conditions and any other specifications contained in any other documents referenced shall constitute and represent the complete and entire agreement between the Town and Contractor and supersede all previous communications, either written or verbal with respect to the subject matter of this Contract.
3. **Changes, Additions, Deletions.** No changes, additions, deletions, or substitutions of scope of work, specifications, terms and conditions, quantity, unit of issue, delivery date, delivery charges or price will be permitted without the prior written approval from the Town.
4. **Relationship of the Parties.** The Contractor is an independent contractor and not an employee of the Town. The conduct and control of the work will lie solely with the Contractor. The Contract shall not be construed as establishing a joint venture, partnership, or any principal-agent relationship for any purpose between the Contractor and the Town. Employees of the Contractor shall remain subject to the exclusive control and supervision of the Contractor, which is solely responsible for their compensation.
5. **Prices.** If Contractor's price or the regular market price of any of the Goods or Services covered hereunder is lower than the price stated in the Contract Documents on the date of shipment of such Goods or performance of such Services, Contractor agrees to give the Town the benefit of such lower price on any such Goods or Services. In no event shall Contractor's price be higher than the price last quoted or last charged to the Town unless otherwise agreed in writing. No charges for transportation, boxing, crating, etc. are allowable unless such charges are included in the Contract Documents.
6. **Taxes.** Any applicable taxes shall be invoiced as a separate item.
7. **Substitutions.** No substitutions or cancellations shall be permitted without prior written approval from the Town.
8. **Indemnification.** To the greatest extent allowed by North Carolina law the Contractor shall indemnify and hold harmless the Town, its officers, agents, employees and assigns from and against all claims, losses, costs, damages, expenses (including expenses of litigation and attorneys'

fees), and attorneys' fees ("Claims"). In the event that any portion of the Work performed under the Contract shall be defective in any respect whatsoever, the Firm shall indemnify and save harmless the Town, its officers, agents, employees, and assigns from and against all Claims as defined herein, but only to the extent allowed by law.

Nothing contained in this Contract shall waive the Constitutional limitation on the Town indemnifying obligations of other parties.

9. **Invoices and Payment Terms.** It is understood and agreed that orders will be shipped at the established Contract prices in effect on dates orders are placed. Invoicing that does not comply with this provision will subject the Contract to cancellation. Upon satisfactory delivery of the Goods or satisfactory completion of the Work, all invoices and statements shall reference the Contract number and be submitted to: Town of Huntersville, Accounts Payable, PO Box 664, Huntersville, North Carolina, 28070. Payment terms are Net 30 days after receipt of correct, undisputed invoice or acceptance of Goods or Services, whichever is later.

When the Contract is for construction services, the Contractor will submit monthly Requests for Payment for Work performed, for review. The Request for payment shall be based upon the Contractor's estimate of the percentage of the total Work completed during the period represented on the Request for Payment. The Contractor must certify that the Work represented in the Contractor's Request for Payment has been completed in accordance with the Contract Documents and certify that the Request for Payment is appropriate for payment before the Town shall be obligated to make such payment to the Contractor. If any Request for Payment is disputed by the Town, in whole or in part, the Town shall provide a written explanation for such dispute to Contractor within five days of receipt of the certified Request for Payment and shall pay all undisputed amounts therein.

10. **Anti-Discrimination and Equal Employment.** During the performance of the Contract, Contractor shall comply with all federal and state requirements concerning fair and equal employment and shall not discriminate against or deny the Contract's benefits to any person on the basis of race, religion, color, creed, national origin, age, sex (including sexual orientation, gender identity, and pregnancy), disability or handicapping condition, or genetic information.
11. **Insurance.** The Contractor shall provide the insurance coverages shown on Exhibit B, attached hereto and incorporated herein by reference. The Contractor shall provide the Town with a North Carolina Certificate of Insurance and such endorsements as may be required by the Contract Documents prior to the commencement of any work under the Contract and agrees to maintain such insurance until the completion of the Contract. Such certificates of insurance shall be considered part of the Contract.
12. **Ethics in Public Contracting.** By submitting their prices and acceptance of this Contract, all Contractors certify that their bids are made without collusion or fraud and that they have not offered or received any kickbacks or inducements from any other supplier, manufacturer, or subcontractor in connection with their offer, and that they have not conferred on any public employee having official responsibility for this procurement transaction any payment, loan, subscription, deposit of money, services or anything of more than nominal value, present or promised, unless consideration of substantially equal or greater value was exchanged.
13. **Applicable Laws and Courts.** All Town Contracts shall be governed in all respects by the laws of the State of North Carolina. All matters, whether sounding in contract or tort relating to the validity, construction, interpretation, and enforcement of the Contract, shall be governed in all respects by the laws of the State of North Carolina and venue shall be proper only in a court of competent jurisdiction located in Mecklenburg County, North Carolina. The Contractor represents and warrants that it shall comply with all applicable federal, state, and local laws, regulations, and orders, including, not limited to, licensure requirements.

14. **Codes and Permits.** When applicable, the Contractor shall obtain all required permits, give all required notices, and comply with all laws, ordinances, codes, rules, and regulations bearing on the conduct of the work under this contract. If the Contractor observes that the drawings and specifications are at variance therewith, he shall promptly notify the designer in writing. All work under this contract shall conform to the current North Carolina Building Code and other state and national codes as are applicable. If the Contractor performs any work knowing it to be contrary to such laws, ordinances, codes, rules, and regulations, and without such notice to the Town, Contractor shall bear all cost arising therefrom.
15. **License Requirement.** If applicable, the Contractor must be a licensed General Contractor as required by North Carolina General Statutes Section 87-1 and must have a good ethical and professional standing with the North Carolina General Contractor's Licensing Board. The Contractor will be responsible for providing properly qualified, licensed (if required) personnel to complete the Work in accordance with the standard of care ordinarily used by members of the Contractor's profession practicing under similar circumstances and at the same time in Mecklenburg County.
16. **Strict Compliance.** The Town may at any time insist upon strict compliance with these terms and conditions notwithstanding any previous course of dealing or course of performance between the parties to the contrary.
17. **Assignment.** Contractor may not assign, pledge, or in any manner encumber Contractor's rights under this Contract or delegate the performance of any of its obligations hereunder, without Town's prior, express written consent.
18. **General Provisions.** The Town's remedies as set forth herein are not exclusive. Any delay or omission by the Town in exercising any right hereunder, or any waiver by the Town of any single breach or default hereunder, shall not be deemed to be a waiver of such right or of any other right, breach, or default.
19. **Warranties.** The Contractor warrants it shall adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town in the performance of the Work outlined in this Contract and any attached specifications. Contractor warrants that any finished Work completed hereunder shall also adhere to all laws, codes, ordinances, and regulations of the United States, the State of North Carolina, the County of Mecklenburg, and the Town. Contractor warrants that all Work delivered hereunder will be free from defects in materials and workmanship and will conform strictly to the specifications, drawings, or samples specified or furnished. This warranty shall survive any inspection, delivery, acceptance, or payment by the Town for the Work and shall run to the Town and any user of the Work. Contractor warrants that all Work will be performed in a professional and workman like manner in accordance with best industry practices. This express warranty is in addition to Contractor's implied warranties of merchantability and fitness for a particular purpose which shall not be disclaimed. In addition to any other rights available at law or in equity, the Town shall be entitled to consequential and incidental damages.
20. **Quality and Workmanship.** All Work shall be performed to the satisfaction of the Town. The Work shall not be considered complete nor applicable payments rendered until the Town is satisfied with the Work provided.
21. **Default.** The Town may terminate the Contract, in whole or in part, immediately and without prior notice upon breach of the Contract by the Contractor. In addition to any other remedies available to the Town in law or equity, the Town may procure upon such terms as the Town shall deem appropriate, Work substantially similar to those so terminated, in which case the Contractor shall be liable to the Town for any excess costs for such similar supplies or services and any expenses incurred in connection therewith.

22. **Termination for Convenience.** The Town shall have the right, without assigning any reason therefore, to terminate any Work under the Contract, in whole or in part, at any time at its complete discretion by providing 10 days' notice in writing from the Town to Contractor. If the Contract is terminated by the Town in accordance with this paragraph, the Contractor will be paid in an amount which bears the same ratio to the total compensation as does the Work actually delivered or performed to the total originally contemplated in the Contract. The Town will not be liable to the Contractor for any costs for materials acquired or contracted for if such costs were incurred prior to the date of this Contract.
23. **Risk of Loss.** Risk of Loss for all supplies, materials, the Work performed, and the Project as it is being constructed, shall be on the Contractor until such time as substantial completion is achieved, and approved by the Town.
24. **No Third-Party Beneficiaries.** There shall be no intended nor incidental third-party beneficiaries of this Contract. Contractor shall include in all contracts, subcontracts, or other agreements relating to the Contract an acknowledgment by the contracting parties that the Contract creates no third-party beneficiaries.
25. **Exclusivity.** Nothing in this Contract shall require the Town to use the Contractor or prohibit the Town from soliciting third parties for the good or services provided in this Contract.
26. **Confidentiality.** The Contractor acknowledges the Town is subject public records law and no term shall be inconsistent with N.C.G.S. §132 et al.
27. **Valid Contract for Services.** In order for a Contract for Services of the Town to be valid, it must be executed by the Town Manager or his or her authorized designee and must be pre-audited in that manner required by the Local Government Budget and Fiscal Control Act, as the same may be amended.
28. **Verification of Work Authorization.** Contractor shall comply with, and require all contractors and subcontractors to comply with, the requirements of Article 2 of Chapter 64 of the North Carolina General Statutes, "Verification of Work Authorization," sometimes known as E-verify, for all contractors and subcontractors.
29. **Iran Divestment List.** With the execution hereof, Contractor, certifies that they are not on the Iran Final Divestment List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.58, and will not contract with anyone on such List in performance of the work hereunder.
30. **Availability of Funds.** Any and all payments to the Contractor are dependent upon and subject to the availability of funds to the Town for the purpose set forth in this agreement.
31. **Severability.** If any provision of this Contract is found to be invalid or unlawful, then remainder of this Contract shall not be affected thereby, and each remaining provision shall be valid and enforced to the fullest extent permitted by law.
32. **Companies that Boycott Israel.** With the execution hereof, Contractor, certifies that they are not on the Companies that Boycott Israel List created by the N.C. State Treasurer pursuant to N.C.G.S. § 147-86.80, and will not contract with anyone on such List in performance of the work hereunder.
33. **Governmental Immunity.** Nothing contained in this Contract shall constitute a waiver of the Town's governmental immunity or of any limitation on liability or damages created by law.

EXHIBIT B
MINIMUM INSURANCE REQUIREMENTS

The Work under this Contract shall not commence until the Contractor has obtained all required insurance and verifying certificates of insurance have been approved in writing by the Town. Except for Worker's Compensation and Professional Liability policies, the Town shall be named as additional insured on all policies. These certificates shall document that coverages afforded under the policies will not be cancelled, reduced in amount or coverages eliminated until at least thirty (30) days after mailing written notice, by certified mail, return receipt requested, to the insured and the Town of such alteration or cancellation. If endorsements are needed to comply with the notification or other requirements of this article copies of the endorsements shall be submitted with the certificates.

a. **Worker's Compensation and Employer's Liability**

The Contractor shall provide and maintain, until final acceptance, workmen's compensation insurance, as required by law, as well as employer's liability coverage with minimum limits of \$1,000,000.

b. **Comprehensive General Liability Insurance**

The Contractor shall provide and maintain, until final acceptance, comprehensive general liability insurance, including coverage for premises operations, independent contractors, completed operations, products and contractual exposures, as shall protect such contractors from claims arising out of any bodily injury, including accidental death, as well as from claims for property damages which may arise from operations under this contract, whether such operations be by the Contractor or by any subcontractor, or by anyone directly or indirectly employed by either of them and the minimum limits of such insurance shall be as follows:

Bodily Injury: \$1,000,000 per occurrence/\$2,000,000 aggregate
Professional Liability: \$1,000,000 per occurrence/\$2,000,000 aggregate
Property Damage: \$1,000,000 per occurrence/\$2,000,000 aggregate

Such coverage for completed operations must be maintained for at least two (2) years following final acceptance of the Work performed under the contract.

c. **Deductible**

Any deductible, if applicable to loss covered by insurance provided, is to be borne by the Contractor.

d. **Other Insurance**

The Contractor shall obtain such additional insurance as may be required by the Town or by the General Statutes of North Carolina including motor vehicle insurance, in amounts not less than the statutory limits.

e. **Proof of Carriage**

The Contractor shall furnish the Town with satisfactory proof of carriage of the insurance required before written approval is granted by the Town.

EXHIBIT C – PLANS AND SPECIFICATIONS

(insert plans and specs)

EXHIBIT D – FEE SCHEDULE

<u>Service</u>	<u>Unit Cost</u>	<u>Quantity</u>	<u>Total</u>
Total Cost =			

Company Name

Date

Print Name

Title

Signature

SECTION 011000 – SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS and REQUIREMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 WORK COVERED BY CONTRACT DOCUMENTS

- A. Project Identification: North Mecklenburg Park Splash Pad.
- B. Consultant Identification: The Contract Documents, dated 07-28-2023, were prepared for the Project by McAdams.
- C. The Work consists of the construction of a splash pad and pedestrian hardscape areas with associated demolition/clearing, grading, erosion control, installation of utilities, stormwater conveyance measures, and landscaping.
 - 1. Contractor shall furnish all material, labor, tools, supplies, equipment, transportation, superintendence, temporary construction of every nature, insurance, taxes, contributions and all services and facilities, unless specifically excepted, and install all materials, items and equipment required to complete the construction of the Project, as set forth in the Contract Documents and as required to provide complete and operational systems.
 - 2. The Contractor shall act as the Project Expediter and be responsible for coordinating the work and schedules of others hired by him.

1.3 CONTRACT

- A. Project will be constructed as a Single Prime Contract.

1.4 SPECIFICATION FORMATS AND CONVENTIONS

- A. Technical Specifications Format: The Specifications are organized into Divisions and Sections using the 33-division format and "MasterSpec" numbering system.
 - 1. Section Identification: The Technical Specifications use section numbers and titles to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the table of contents at the beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

- B. Technical Specifications Content: The Technical Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Abbreviated Language: Language used in the Technical Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 2. Imperative mood and streamlined language are generally used in the Technical Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements for handling and processing Contract modifications whereas all parties agree to the following:
 - 1. A modification in the Work or Contract Documents.
 - 2. The amount of the adjustment in the Contract Sum, if any.
 - 3. The extent of the adjustment in the Contract Time, if any.

1.3 NOTIFICATION TO SURETY

- A. The Contractor shall notify the Surety of any modifications to the Work or provisions of the Contract Documents, including, but not limited to, the Contract Price or Contract Time.

1.4 MINOR CHANGES IN THE WORK

- A. The Consultant shall have authority to order Minor Changes in the Work not involving adjustment to the Contract Sum or extension of the Contract Time, and consistent with the intent of the Contract Documents. Such changes shall be in a form of a written order and shall be binding for both the Owner and Contractor when fully executed.

1.5 CLAIMS FOR ADDITIONAL COST:

- A. No claim for an adjustment in Contract Price or Contract Times will be valid if not submitted in accordance with this Paragraph.

Notice: Written notice stating the general nature of each claim shall be delivered by the claimant to the other party to the Contract promptly, but in no event later than thirty (30) days after the start of the event giving rise to the claim.

The responsibility to substantiate a claim shall rest with the party making the claim. The amount or extent of the claim, with supporting data, shall be delivered to the other party to the Contract within fifteen (15) days after the initial Notice of the Claim.

Each claim shall be accompanied by claimant's written statement that the adjustment claimed is the entire adjustment to which the claimant believes it is entitled as a result of said event.

The opposing party shall submit any response to the claimant within thirty (30) days after receipt of the claimant's last submittal. Prior notice is not required for Claims relating to an emergency endangering life or property.

- B. The Contractor shall submit a claim if he believes additional cost is involved for reasons including but not limited to the following:

1. A written interpretation from the Consultant,
2. An order by the Owner to stop the Work where the Contractor was not at fault,
3. A written order for a minor change in the Work issued by the Consultant,
4. A change in the Scope of the Work by the Consultant.

1.6 PROPOSAL REQUESTS

- A. The Owner initiated Proposal Requests is generated by the Owner to modify the Work or Contract Documents. The Consultant will issue a detailed description of proposed modifications in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications. The description is for information and shall be considered as a directive to automatically stop work or execute the proposed change.

1. Within ten 10-calendar days after receipt of the Proposal Request, the Contractor shall submit a Proposal Request Form with an estimate to adjust the Contract Sum and the Contract Time if necessary to execute the change. Proposal shall include support documents from Subcontractor, if applicable.
 - a. Include a list of quantities of (plus or minus) the materials and/or products required with unit prices, total amount of purchases, and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change, including social security, old age and unemployment insurance, fringe benefits, and workmen's compensation insurance.
 - d. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start, and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

2. The Contractor may initiate proposals if latent or unforeseen conditions require modifications to the Contract, Contractor may propose changes by submitting a request for a change to Consultant.
 - a. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - b. Include a list of quantities of (plus or minus) the materials and/or products required with unit prices, total amount of purchases, and credits to be made. If requested, furnish survey data to substantiate quantities.
 - c. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - d. Include costs of labor and supervision directly attributable to the change, including social security, old age and unemployment insurance, fringe benefits, and workmen's compensation insurance.
 - e. Include an updated Contractor's Construction Schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - f. Comply with requirements in Division 1 Section, of the Technical Specifications "Product Requirements" if the proposed change requires substitution of one product or system for product or system specified.
- B. An alternative method to price the changes in the work is to utilize current "Mean's Cost Data".
- C. Profit and Overhead shall not exceed ten percent (10%) of the cost of the changes to the Work.
- D. Use Proposal Request Form provided by Owner. A "Sample is included in the Appendix. The Contractor shall prepare three copies, one for the Consultant, one for the Owner and one for himself and for all parties to sign. Each shall keep a copy.
- E. The Contractor shall be responsible for keeping and updating a "Proposal Request Log", listing all Proposal Requests and Minor Changes. The log shall also indicate the date of the Proposal Request, approval date, action taken, running balances, and a complete description of the change.
- F. After all parties have signed "The Proposal Request Form", it shall be the Contractor's authorization to proceed with the changes to the Work.

If the Owner and Contractor do not agree with the requested adjustment in the Contract Sum, the Contract Time or the method of determining each, the provisions for Mediation shall be utilized.

1.7 CHANGE ORDER PROCEDURES

- A. The Consultant shall issue a Change Order for signatures once all of the Proposal Request(s) amounts exceeds the contingency amount or at the end of the project.
- B. The Contractor shall not invoice for the Change Order until it has been executed by all parties.

1.8 CONSTRUCTION CHANGE DIRECTIVE

- A. The Consultant may issue a Construction Change Directive that has been signed by the Owner to the Contractor directing a change in the Work. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Upon receipt of a Construction Change Directive, the Contractor shall promptly proceed with the change in the Work involved. And the Contractor shall advise the Consultant of the Contractor's agreement or disagreement with the method, if any, provided in the Construction Change Directive for determining the proposed adjustment in the Contract Sum or Contract Time.
- C. The Contractor shall maintain detailed records on a time and material basis of work required by the Construction Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)**PART 3 - EXECUTION****3.1 PROCESSING CHANGE ORDERS**

- A. The Change Order will be issued describing the change or changes to the Work and/or Contract Documents and will refer to the Proposal Requests.
- B. The Consultant shall issue one copy of the Change Order to the Contractor. The Contractor shall promptly sign the copy and return the copy to the Consultant who will sign the Change Order and forward the Change Order to the Owner to execute
- C. Once the Change Order has been fully executed, a copy shall be forwarded to the Consultant and to the Contractor for their files.

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 1, of the Technical Specifications Section 013200 "Construction Progress Documentation" for administrative requirements governing preparation and submittal of Contractor's Construction Schedule and Submittals Schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule.
 - 1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms AIA G702.
 - b. Continuation Sheets (example of the Continuation Sheet form is in VIII Forms).
 - 2. Submit the Schedule of Values to the Consultant at earliest possible date but no later than fourteen (14) days before the date scheduled for submittal of initial Applications for Payment.

3. Sub-schedules: Where the Work is separated into phases requiring separately phased payments, provide sub-schedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the Schedule of Values. Provide at least one (1) line item for each of the Technical Specifications Section.
1. Identification: Include the following Project information on the Schedule of Values:
 - a. Project name and location.
 - b. Name of Consultant.
 - c. Contract number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Technical Specifications Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value.
 3. Group items that are "Non-Tangible & Non-Taxable and Tangible & Taxable Items" on the Schedule of Values (see VIII. Forms, Continuation Sheet).
 4. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide several line items for principal subcontract amounts, where appropriate.
 5. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 6. Provide a separate line item in the Schedule of Values for each part of the Work where Applications for Payment may include labor and materials and/or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. Include evidence of insurance or bonded warehousing if required.
 7. Provide separate line items in the Schedule of Values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.

8. Each item in the Schedule of Values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown as separate line items in the Schedule of Values or distributed as general overhead expense, at Contractor's option.
9. Schedule Updating: Update and resubmit the Schedule of Values before the next Applications for Payment when Change Orders result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment shall be consistent with previous applications and payments as certified by the Consultant and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involves additional requirements.
- B. Such applications shall not include requests for payment of amounts the Contractor does not intend to pay to a Subcontractor or material supplier because of a dispute or other reason.
- C. Unless otherwise provided in the Contract Documents, payments shall be made on account of materials and equipment delivered and suitably stored at the site for subsequent incorporation in the work. If approved in advance by the Owner, payment may similarly be made for materials and equipment suitably stored off the site at a location agreed upon in writing. Payment for material and equipment stored on or off the site shall be conditioned upon compliance by the Contractor with procedures satisfactory to the Owner to establish the Owner's title to such material and equipment or otherwise protect the owner's interest, and shall include applicable insurance, storage and transportation to the site for such material and equipment stored off the site.

The Contractor warrants that title to all Work covered by an Application and Certificate for payment will pass to the Owner no later than the time of payment. The Contractor further warrants that upon submittal of an Application and Certificate for payment all work for which Certificates for payment have been previously issued and payment received from the owner shall, to the best of the Contractor's knowledge, information and belief, be free and clear of claims of liens, claims, security, interests or encumbrances in favor of the Contractor, Subcontractors, material suppliers, or other persons or entities making a claim by reason of having provided labor, materials and equipment relating to the Work.
- D. Payment Application Times: Each Month, the County can make a partial payment to the Contractor on the basis of a duly notarized Application and Certification for Payment approved and certified by the Consultant.

- E. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. The Consultant will return incomplete applications without action.
1. Entries shall match data on the Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.
 2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 3. The Town will retain retainage will be retained in accordance with N.C.G.S 143-134.1

Section is continued on the next page

4. If required by the Owner, other data establishing payment or satisfaction of obligations, such as receipts, releases and waivers of claim of liens, claims security interests or encumbrances arising out of the Contract, to the extent and in such form as may be designated by the Owner. If the Subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond satisfactory to the Owner to indemnify the Owner against such claim of lien. If such claim of lien remains unsatisfied after payments are made, the Contractor shall refund to the Owner all money that the Owner may be compelled to pay in discharging such claim, including all costs and reasonable attorneys' fees.
 5. MWSBE form VI.
 6. A list of all suppliers and subcontractors that were involved with the project. As part of the list, the Contractor shall include the address, phone number, what they supplied or Work performed, and a contact name.
 7. "As-Built" Drawings
 8. Maintenance and Operation instructions and guarantees.
- J. Final Payment Application: Submit with the final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Warranties and Test results required by the Contract Documents.
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 4. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 5. AIA Document G707, "Consent of Surety to Final Payment."
 6. Additional Evidence that claims has been settled if required by the Owner. An example of the evidence could be a letter from a subcontractor indicating that he has been paid in full for the work that he has performed.
 7. Certificates from all local and State Governing Agencies as required by Law.
 8. Final liquidated damages settlement statement.
 9. List of Sub-Contractors and Suppliers that has contributed to the completion of the Work. The list shall include:
 - a. Material they supplied or type of construction they performed.
 - b. Address
 - c. Contact person
 - d. Phone number

10. M/WSBE From VI
11. Final Sales Tax Form.

PRODUCTS (Not Used)

EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. To enable orderly review during progress of the Work, and to provide for systematic discussion of problems, the Consultant will chair and conduct project meetings and compile an agenda for each meeting throughout the construction period.
- B. This Section includes administrative provisions for coordinating construction operations on the Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Conservation.
 - 3. Coordination Drawings.
 - 4. Administrative and supervisory personnel.
 - 5. Project meetings.
- C. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. Division 1, of the Technical Specifications Section 013200 "Construction Progress Documentation" for preparing and submitting the Contractor's Construction Schedule.
 - 2. Division 1, of the Technical Specifications Section 017300 "Execution" for procedures for coordinating general installation and field- engineering services, including establishment of benchmarks and control points.
 - 3. Division 1, of the Technical Specifications Section 017700 "Closeout Procedures" for coordinating Contract closeout.

1.3 COORDINATION

- A. Coordination: Coordinate construction operations included in various Sections of the Technical Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections that depend on each other for proper installation, connection, and operation.
 - 1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components.

2. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. If necessary, the Consultant shall prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's Construction Schedule.
 2. Preparation of the Schedule of Values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Pre-installation conferences.
 7. Project closeout activities.
- D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials.
1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work.

1.4 SUBMITTALS

- A. Coordination Drawings: Prepare Coordination Drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities.
1. Indicate relationship of components shown on separate Shop Drawings.
 2. Indicate required installation sequences.

1.5 PROJECT MEETINGS

- A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.
 - 1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting.
 - 2. Agenda: The Consultant shall prepare the meeting agenda. Distribute the agenda to all invited attendees.
 - 3. Minutes:
 - a. The Consultant will compile minutes of each project meeting and will distribute copies to the Contractor and required copies to the Owner.
 - b. Recipients of copies may make and distribute such other copies as they wish.
 - 4. Attendance:
 - a. To the maximum extent practical, assign the same person or persons to represent the Contractor at the project meetings throughout progress of the Work.
 - b. Subcontractors, materials suppliers, and others may be invited to attend those project meetings in which their aspect of the Work is involved.
 - 5. Minimum agenda:
 - a. Review, revise as necessary, and approve minutes of previous meetings.
 - b. Review progress of the Work since last meeting, including status of submittals for approval.
 - c. Identify problems which impede planned progress.
 - d. Develop corrective measures and procedures to regain planned schedule.
 - e. Complete other current business.
- B. Pre-construction Conference: Schedule a pre-construction conference before starting construction, at a time convenient to Owner and Consultant, but no later than fourteen (14) days after execution of the Construction Contract. Hold the conference at Project site or another convenient location. Conduct the meeting to review responsibilities and personnel assignments.
 - 1. Attendees: Authorized representatives of Owner, Consultant, and their consultants; Contractor and its superintendent; major subcontractors and other concerned parties shall attend the conference. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.

2. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing.
 - d. Designation of responsible personnel.
 - e. Procedures for processing field decisions and Change Orders.
 - f. Procedures for processing Applications for Payment.
 - g. Distribution of the Contract Documents.
 - h. Submittal procedures.
 - i. Preparation of Record Documents.
 - j. Use of the premises.
 - k. Responsibility for temporary facilities and controls.
 - l. Parking availability.
 - m. Office, work, and storage areas.
 - n. Equipment deliveries and priorities.
 - o. Security.
 - p. Working hours.
- C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
 1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Consultant of scheduled meeting dates.
 2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
 - a. Contract Documents.
 - b. Options.
 - c. Related Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Submittals.
 - g. Review of mockups.
 - h. Possible conflicts.
 - i. Time schedules.
 - j. Weather limitations.
 - k. Manufacturer's written recommendations.
 - l. Temporary facilities and controls.
 - m. Space and access limitations.
 - n. Regulations of authorities having jurisdiction.
 - o. Testing and inspecting requirements.
 - p. Required performance results.
 - q. Protection of construction and personnel.

3. Record significant conference discussions, agreements, and disagreements. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.
- D. Attendees: Representatives at the meeting shall be the Owner, Consultant, Subcontractors, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
1. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
 2. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's Construction Schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
 3. Review present and future needs of each entity present, including the following:
 - a. Interface requirements.
 - b. Sequence of operations.
 - c. Status of submittals.
 - d. Deliveries.
 - e. Access.
 - f. Work hours.
 - g. Hazards and risks.
 - h. Review of Record Drawings
 - i. Review of construction defects that has been identified by the Consultant
 4. Reporting: Distribute minutes of the meeting to each party present and to parties who should have been present. Include a brief summary, in narrative form, of progress since the previous meeting and report.
 - a. Schedule Updating: Revise Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Preliminary Construction Schedule.
 - 2. Contractor's Construction Schedule.
 - 3. Submittals Schedule.
 - 4. Daily construction reports.
 - 5. CPM Reports
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section 012900 "Payment Procedures" for submitting the Schedule of Values.
 - 2. Division 1, of the Technical Specifications Section 013100 "Project Management and Coordination" for submitting and distributing meeting and conference minutes.
 - 3. Division 1, of the Technical Specifications Section 013300 "Submittal Procedures" for submitting schedules and reports.
 - 4. Division 1, of the Technical Specifications Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.
 - 5. Division 1, of the Technical Specifications Section 017700 "Closeout Procedures" for Project Record Documents at Project closeout.

1.3 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Consultants and owners, and other information specified. The date shall be submitted for any change of construction personal.
- B. Preliminary Construction Schedule: Submit one (1) printed copy; one a single sheet, of the Preliminary Construction Schedule.

- C. Contractor's Construction Schedule: Submit one (1) printed copy of initial schedule, large enough to show entire schedule for entire construction period.
 - 1. If required, submit an electronic copy of schedule, using software indicated, on a CD and labeled to comply with requirements for submittals. Include type of schedule (Initial or Updated) and date on label.
- D. Daily Construction Reports: Submit one (1) copy at monthly intervals.
- E. Submittals Schedule: Submit one (1) copy of schedule. Arrange the following information in a tabular format:
 - 1. Scheduled date for first submittal.
 - 2. Of the Technical Specifications Section number and title.
 - 3. Submittal category (action or informational).
 - 4. Name of subcontractor.
 - 5. Description of the Work covered.
 - 6. Scheduled date for Consultant's final release or approval.

1.4 COORDINATION

- A. Coordinate preparation and processing of schedules and daily construction reports with performance of construction activities and with scheduling and reporting of separate contractors.
- B. Coordinate Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittals Schedule, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from parties involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

PART 2 - PRODUCTS

2.1 SUBMITTALS SCHEDULE

- A. Preparation: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, resubmittal, ordering, manufacturing, fabrication, and delivery when establishing dates.
 - 1. Coordinate Submittals Schedule with list of subcontracts, the Schedule of Values, and Contractor's Construction Schedule.

2. Initial Submittal: Submit concurrently with preliminary bar-chart schedule. Include submittals required during the first sixty (60) days of construction. List those required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
 - a. At Contractor's option, show submittals on the Preliminary Construction Schedule, instead of tabulating them separately.
 - i. Final Submittal: Submit concurrently with the first complete submittal of Contractor's Construction Schedule.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed, through the date of Substantial Completion and Final Completion.
 1. Contract completion date shall not be changed, unless specifically authorized by Change Order.
 2. Submittal Review Time: Include review and resubmittal times indicated in Division 1 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's Construction Schedule with Submittals Schedule.
 3. Substantial Completion: Indicate completion in advance of date established for Substantial Completion and allow time for Consultant's administrative procedures necessary for certification of Substantial Completion.
- B. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in the schedule and show how the sequence of the Work is affected.
 1. Phasing: Arrange list of activities on schedule by phase.
 2. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Environmental control.
 3. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Submittals.
 - b. Purchases.
 - c. Mockups.
 - d. Fabrication.
 - e. Sample testing.
 - f. Deliveries.
 - g. Installation.
 - h. Tests and inspections.
 - i. Startup and placement into final use and operation.

- C. Milestones: If not included in the Construction Documents, milestones shall be indicated in the Construction Schedule for the Consultant's and Owner's approval and shall be reference points of the construction progress.
- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using fragments to demonstrate the effect of the proposed change on the overall project schedule.

2.1 PRELIMINARY CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: If requested, submit preliminary horizontal bar-chart- type construction schedule within seven (7) days of date established for the Notice to Proceed
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first sixty (60) days of construction. Include skeleton diagram for the remainder of the Work.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
 - 1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 - 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 - 3. As the Work progresses, indicate Actual Completion percentage for each activity.
- B. Distribution: Distribute copies of approved schedule to Consultant, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. Post copies in Project meeting rooms and temporary field offices.
 - 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other miscellaneous submittals.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section 012900 "Payment Procedures" for submitting Applications for Payment.
 - 2. Division 1, of the Technical Specifications Section 013100 "Project Management and Coordination" for submitting Coordination Drawings.
 - 3. Division 1, of the Technical Specifications Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's Construction Schedule and the Submittals.
 - 4. Division 1, of the Technical Specifications Section "Quality Requirements" for test and inspection reports and Delegated-Design Submittals and for erecting mockups.
 - 5. Division 1, of the Technical Specifications Section 017700 "Closeout Procedures" for submitting warranties Project Record Documents and operation and maintenance manuals.
 - 6. Division 1, of the Technical Specifications Section 017839 "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information that requires Consultant's responsive action.
- B. Informational Submittals: Written information that does not require Consultant's approval. Submittals may be rejected for not complying with requirements.

1.4 SUBMITTAL PROCEDURES

- A. The Contractor shall provide the submittals as required by the Consultant's Submittal Log and the Contract Documents.
- B. General: Electronic copies of CAD Drawings of the Contract Drawings will not be provided by Consultant for Contractor's use in preparing submittals.
- C. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 - 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 - 2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. Consultant reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- D. Submittals Schedule: Comply with requirements in Division 1, of the Technical Specifications Section "Construction Progress Documentation" for list of submittals and time requirements for scheduled performance of related construction activities. (Submittal Log)
- E. Processing Time: Allow enough time for submittal review, including time for re- submittals, as follows. Time for review shall commence on Consultant's receipt of submittal.
 - 1. Initial Review: Allow seven (7) days for initial review of each submittal. Allow additional time if processing must be delayed to permit coordination with subsequent submittals. Consultant will advise Contractor when a submittal being processed must be delayed for coordination.
 - 2. Concurrent Review: Where concurrent review of submittals by Consultant's consultants, Owner, or other parties is required, allow twenty one (21) days for initial review of each submittal.
 - 3. If intermediate submittal is necessary, process it in same manner as initial submittal.
 - 4. Allow seven (7) days for processing each re-submittal.
 - 5. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing.
- F. Identification: Place a permanent label or title block on each submittal for identification.
 - 1. Indicate name of firm or entity that prepared each submittal on label or title block.
 - 2. Provide a space approximately 4 by 5 inches on label or beside title block to record Contractor's review and approval markings and action taken by Consultant.

3. Include the following information on label for processing and recording action taken:
 - a. Project name.
 - b. Date.
 - c. Name and address of Consultant.
 - d. Name and address of Contractor.
 - e. Name and address of subcontractor.
 - f. Name and address of supplier.
 - g. Name of manufacturer.
 - h. Unique identifier, including revision number.
 - i. Number and title of appropriate Technical Specifications Section.
 - j. Drawing number and detail references, as appropriate.
 - k. Other necessary identification.
- G. Deviations: Highlight, encircle, or otherwise identify deviations from the Contract Documents on submittals.
- H. Additional Copies: Unless additional copies are required for final submittal, and unless Consultant observes noncompliance with provisions of the Contract Documents, initial submittal may serve as final submittal.
 1. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Consultant.
 2. Additional copies submitted for maintenance manuals will be marked with action taken and will be returned.
- I. Transmittal: Package each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Consultant will return submittals, without review, received from sources other than Contractor.
 1. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Consultant on previous submittals, and deviations from requirements of the Contract Documents, including minor variations and limitations. Include the same label information as the related submittal.
 2. Include Contractor's certification stating that information submitted complies with requirements of the Contract Documents.
 3. Transmittal Form: Use on form to be defined by the Consultant.
- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Use only final submittals with mark indicating action taken by Consultant in connection with construction.

PART 2 - PRODUCTS

2.1 ACTION SUBMITTALS

- A. General: Prepare and submit Action Submittals required by individual Specification Sections.
 - 1. Number of Copies: Submit 6 copies of each submittal, unless otherwise indicated. Consultant will return 5 copies. Mark up and retain three returned copy as a Project Record Document.
- B. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 - 1. If information must be specially prepared for submittal because standard printed data are not suitable for use, submit as Shop Drawings, not as Product Data.
 - 2. Mark each copy of each submittal to show which products and options are applicable.
 - 3. Include the following information, as applicable:
 - a. Manufacturer's written recommendations.
 - b. Manufacturer's product specifications.
 - c. Manufacturer's installation instructions.
 - d. Standard color charts.
 - e. Manufacturer's catalog cuts.
 - f. Wiring diagrams showing factory-installed wiring.
 - g. Printed performance curves.
 - h. Operational range diagrams.
 - i. Mill reports.
 - j. Standard product operating and maintenance manuals.
 - k. Compliance with recognized trade association standards.
 - l. Compliance with recognized testing agency standards.
 - m. Application of testing agency labels and seals.
 - n. Notation of coordination requirements.
 - o. Manufacturer's location.
- C. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 - 1. Preparation: Include the following information, as applicable:
 - a. Dimensions.
 - b. Identification of products.
 - c. Fabrication and installation drawings.
 - d. Roughing-in and setting diagrams and existing conditions.
 - e. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.
 - f. Shopwork manufacturing instructions.
 - g. Templates and patterns.
 - h. Schedules.

- i. Design calculations.
 - j. Compliance with specified standards.
 - k. Notation of coordination requirements.
 - l. Notation of dimensions established by field measurement.
 2. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.
 3. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches but no larger than 30 by 40 inches.
 4. Number of Copies: Submit 3 blue- or black-line prints and one (1) electronic file of each submittal, print will be required for operation and maintenance manuals. Consultant will retain two prints; remainder will be returned.
- D. Coordination Drawings: Comply with requirements in Division 1 Section "Project Management and Coordination."
- E. Samples: Prepare physical units of materials or products, including the following:
1. Comply with requirements in Division 1 Section "Quality Requirements" for mockups. Verify the samples are true presentation of the materials to be used.
 2. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 3. Preparation: Mount, display, or package Samples in manner specified to facilitate review of qualities indicated. Prepare Samples to match Consultant's sample where so indicated. Attach label on unexposed side that includes the following:
 - a. Generic description of Sample.
 - b. Product name or name of manufacturer.
 - c. Sample source.
 4. Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, provide the following:
 - a. Size limitations.
 - b. Compliance with recognized standards.
 - c. Availability.
 - d. Delivery time.
 5. Submit Samples for review of kind, color, pattern, and texture for a final check of these characteristics with other elements and for a comparison of these characteristics between final submittal and actual component as delivered and installed.
 - a. If variation in color, pattern, texture, or other characteristic is inherent in the product represented by a Sample, submit at least three sets of paired units that show approximate limits of the variations. The consultant will return submittal with the option selected.
 - b. Refer to individual Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

6. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
- F. Product Schedule or List: Prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product.
 2. Number and name of room or space.
 3. Location within room or space.
- G. Delegated-Design Submittal: Comply with requirements in Division 1 Section "Quality Requirements."
- H. Submittals Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- I. Application for Payment: Comply with requirements in Division 1 Section "Payment Procedures."
- J. Schedule of Values: Comply with requirements in Division 1 Section "Payment Procedures."
- K. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Include the following information in tabular form:
 1. Name, address, and telephone number of entity performing subcontract or supplying products.

2.2 INFORMATIONAL SUBMITTALS

- A. General: Prepare and submit Informational Submittals required by other Specification Sections.
 1. Number of Copies: Submit two copies of each submittal, unless otherwise indicated. Consultant will not return copies.
 2. Certificates and Certifications: Provide a notarized statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.

- B. Contractor's Construction Schedule: Comply with requirements in Division 1 Section "Construction Progress Documentation."
- C. Qualification Data: If requested, prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, names and addresses of Consultants and owners, and other information specified.
- D. Product Certificates: Prepare written statements on manufacturer's letterhead certifying that product complies with requirements.
- E. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements. Submit record of Welding Procedure Specification (WPS) and Procedure Qualification Record (PQR) on AWS forms. Include names of firms and personnel certified.
- F. Installer Certificates: Prepare written statements on manufacturer's letterhead certifying that Installer complies with requirements and, where required, is authorized for this specific Project.
- G. Manufacturer Certificates: Prepare written statements on manufacturer's letterhead certifying that manufacturer complies with requirements. Include evidence of manufacturing experience where required.
- H. Material Certificates: Prepare written statements on manufacturer's letterhead certifying that material complies with requirements.
- I. Compatibility Test Reports: Prepare reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation for the application.
- J. Product Test Reports: Prepare written reports indicating current product produced by manufacturer complies with requirements. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- K. Coordinate individual Specification Sections with paragraph below by including specific model code organization in that Section. If all are same, insert name below. Maintenance Data: Prepare written and graphic instructions and procedures for operation and normal maintenance of products and equipment. Comply with requirements in Division 1 Section "Closeout Procedures Operation and Maintenance Data."

- L. Manufacturer's Instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
 - 1. Preparation of substrates.
 - 2. Required substrate tolerances.
 - 3. Sequence of installation or erection.
 - 4. Required installation tolerances.
 - 5. Required adjustments.
 - 6. Recommendations for cleaning and protection.
- M. Manufacturer's Field Reports: Prepare written information documenting factory- authorized service representative's tests and inspections. Include the following, as applicable:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.
- N. Construction Photographs: Comply with requirements in Division 1 Section "Construction Progress Documentation"
- O. Material Safety Data Sheets: Submit two copies for the Consultant and the Owner and keep a copy at the job site. Post warning signs when appropriate.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Review each submittal and check for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Consultant.
- B. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 CONSULTANT'S ACTION

- A. General: Consultant will not review submittals that do not bear Contractor's approval stamp and will return them without action.
- B. Action Submittals: Consultant will review each submittal, make marks to indicate corrections or modifications required, and return it. Consultant will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action taken, as follows:
- C. Informational Submittals: Consultant will review each submittal and will not return it, or will reject and return it if it does not comply with requirements. Consultant will forward each submittal to appropriate party.
- D. Submittals not required by the Contract Documents will not be reviewed and may be discarded unless a justification is also submitted.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's quality-control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-control services required by Consultant, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section 013200 "Construction Progress Documentation" for developing a schedule of required tests and inspections.
 - 2. Division 1, of the Technical Specifications Section 017310 "Cutting and Patching" for repair and restoration of construction disturbed by testing and inspecting activities.
 - 3. Divisions 2 through 33, of the Technical Specifications Sections for specific test and inspection requirements.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and ensure that proposed construction complies with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that completed construction comply with requirements. Services do not include contract enforcement activities performed by Consultant.

- C. Mockups: Full-size, physical example assemblies to illustrate finishes and materials. Mockups are used to verify selections made under Sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Mockups establish the standard by which the Work will be judged.
- D. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 SUBMITTALS

- A. Schedule of Tests and Inspections: Prepare in tabular form and include the following:
 - 1. Technical Specifications Section number and title.
 - 2. Description of test and inspection.
 - 3. Identification of applicable standards.
 - 4. Identification of test and inspection methods.
 - 5. Number of tests and inspections required.
 - 6. Time schedule or time span for tests and inspections.
 - 7. Entity responsible for performing tests and inspections.
 - 8. Requirements for obtaining samples.
 - 9. Unique characteristics of each quality-control service.

1.5 QUALITY ASSURANCE

- A. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- B. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- C. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- D. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent for a second option.
- F. Testing Qualifications

1.6 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
 - 1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of the types of testing and inspecting they are engaged to perform.
 - 2. Costs for retesting and re-inspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Unless otherwise indicated, provide quality-control services specified and required by authorities having jurisdiction.
 - 1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ the same entity engaged by Owner, unless agreed to in writing by Owner.
 - 2. Notify testing agencies at least twenty-four (24) hours in advance of time when Work that requires testing or inspecting will be performed.
 - 3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 - 4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 - 5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Special Tests and Inspections: Owner will engage a testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner.
 - 1. Testing agency will notify Consultant and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
 - 2. Testing agency will submit a certified written report of each test, inspection, and similar quality-control service to Consultant with copy to Contractor and to authorities having jurisdiction.
 - 3. Testing agency will submit a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
 - 4. Testing agency will interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.
 - 5. Testing agency will retest and re-inspect corrected work.
- D. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing.

- E. Retesting/Re-inspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services as requested by the Consultant at the Contractor's expense, including retesting and re-inspecting, for construction that revised or replaced Work, at the Contractor's expense, that failed to comply with requirements established by the Contract Documents.
- F. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field-curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.
- G. Coordination: Coordinate sequence of activities to accommodate required quality- assurance and quality-control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.
- H. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Submit schedule within thirty (30) days of date established for the Notice to Proceed.
 - 1. Distribution: Distribute schedule to Owner, Consultant, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Sections of these Specifications. Restore patched areas and extend restoration into adjoining areas in a manner that eliminates evidence of patching.
 - 2. Comply with the Contract Document requirements for Division 1, of the Technical Specifications Section "Cutting and Patching."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
 - B. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
 - C. Temporary utilities include, but are not limited to, the following:
 - 1. Water service and distribution.
 - 2. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
 - 3. Ventilation.
 - 4. Electric power service.
 - 5. Lighting as required.
 - D. Support facilities include, but are not limited to, the following:
 - 1. Project identification and temporary signs.
 - 2. Waste disposal facilities.
 - E. Security and protection facilities include, but are not limited to, the following:
 - 1. Environmental protection.
 - 2. Security enclosure and lockup.
- 1.3 DEFINITIONS
- A. Permanent Enclosure: As determined by Consultant, permanent or temporary roofing is complete, insulated, and weather tight; exterior walls are insulated and weather tight; and all openings are closed with permanent construction or substantial temporary enclosures.

1.4 USE CHARGES

- A. General: Cost or use charges for temporary facilities are not chargeable to Owner or Consultant and shall be included in the Contract Sum. Allow other entities to use temporary services and facilities without cost, including, but not limited to, the following:
 - 1. Testing agencies.
 - 2. Personnel of authorities having jurisdiction.
 - 3. Consultant.
 - 4. Sub-Contractor.
 - 5. Any additional Owner provided Contractor.
- B. Water Service: Pay water service use charges, whether metered or otherwise, for water used by all entities engaged in construction activities at Project site.
- C. Electric Power Service: Pay electric power service use charges, whether metered or otherwise, for electricity used by all entities engaged in construction activities at Project site.

1.5 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's "Temporary Electrical Facilities," and NFPA 241.
 - 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
 - 2. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 PROJECT CONDITIONS

- A. Conditions of Use: The following conditions apply to use of temporary services and facilities by all parties engaged in the Work:
 - 1. Keep temporary services and facilities clean and neat.
 - 2. Relocate temporary services and facilities as required by progress of the Work.

PART 2 - PRODUCTS

2.1 EQUIPMENT

- A. General: Provide equipment suitable for use intended.

- B. Fire Extinguishers: Hand carried, portable, UL rated. Provide class and extinguishing agent as indicated or a combination of extinguishers of NFPA-recommended classes for exposures.
 - 1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure and the requirements of the local Governing agency. Contractor to supply a minimum of 1 fire extinguisher on site at all times.
- C. Self-Contained Toilet Units: Single-occupant units of chemical or aerated recirculation or combustion type; vented; fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- D. Drinking-Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- E. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110- to 120-V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required.
- B. Provide each facility ready for use when needed to avoid delay. Maintain and modify as required. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

- A. General: Engage appropriate local utility company to install temporary service or connect to existing service. Where utility company provides only part of the service, provide the remainder with matching, compatible materials and equipment. Comply with utility company recommendations.
 - 1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.
 - 2. Provide adequate capacity at each stage of construction. Before temporary utility is available, provide trucked-in services.
 - 3. If existing easements can not be used, the Contractor shall consult and coordinate with the Consultant and Owner to secure as necessary to obtain the temporary easement. Add provisions for work not in the Contract but served by temporary facilities if required.

- B. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking-water fixtures. Comply with regulations and health codes for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Disposable Supplies: Provide toilet tissue, paper towels, paper cups, and similar disposable materials for each facility. Maintain adequate supply. Provide covered waste containers for disposal of used material.
 - 2. Toilets: Install self-contained toilet units. Shield toilets to ensure privacy.
 - 3. Wash Facilities: Install wash facilities supplied with potable water at convenient locations as required. Dispose of drainage properly. Supply cleaning compounds appropriate for each type of material handled.
 - 4. Drinking-Water Facilities: Provide drinking-water.
- C. Electric Power Service: Provide weatherproof, grounded electric power service and distribution system of sufficient size, capacity, and power characteristics during construction period. Include meters, transformers, overload-protected disconnecting means, automatic ground-fault interrupters, and main distribution switchgear as required.
- D. Electric Distribution: Provide receptacle outlets adequate for connection of power tools and equipment.
 - 1. Provide waterproof connectors to connect separate lengths of electrical power cords if single lengths will not reach areas where construction activities are in progress. Do not exceed safe length-voltage ratio.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: If required, Comply with the following:
 - 1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
 - 2. Maintain support facilities until approved by the Consultant to be removed.
 - 3. Parking: Parking areas for construction personnel shall be in the existing parking lot onsite.
- B. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste. Comply with "Construction and Demolition Waste Management Recycling. Placement of Dumpster/Sanitary Facilities shall only be in locations designated in the Contract Drawings.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction in ways and by methods that comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

- B. Storm water Control: Comply as indicated on the erosion control plan/measures before any earth disturbing activities start.

3.5 OPERATION, TERMINATION, AND REMOVAL

- A. Maintenance: Maintain facilities in good operating condition until removal. Protect from damage caused by freezing temperatures and similar elements.
- B. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are the property of Contractor.
 - 2. At Substantial Completion, clean and renovate permanent facilities used during construction period. Comply with final cleaning requirements in Division 1, of the Technical Specifications Section "Closeout Procedures."

END OF SECTION 015000

SECTION 015639 - TEMPORARY TREE AND PLANT PROTECTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. The Work of this Section Includes: General protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction.
- B. Related Requirements:
 - 1. Section 015000 "Temporary Facilities and Controls" for temporary controls, utilities, support facilities, temporary site fencing, and, if applicable, temporary erosion and sedimentation controls if not specified in Section 311000 "Site Clearing".
 - 2. Section 311000 "Site Clearing" for removing existing trees and shrubs and for temporary erosion- and sedimentation-control measures if not specified in Section 015000 "Temporary Facilities and Controls".

1.3 DEFINITIONS

- A. Caliper: Diameter of a trunk measured by a diameter tape at a height 6 inches above the ground for trees up to and including 4-inch size at this height and as measured at a height of 12 inches above the ground for trees larger than 4-inch size.
- B. Caliper (DBH): Diameter breast height; diameter of a trunk as measured by a diameter tape at a height 54 inches above the ground line.
- C. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- D. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.
 - 1. Review methods and procedures related to temporary tree and plant protection including, but not limited to, the following:
 - a. Construction schedule.
 - b. Tree-service firm's personnel and equipment needed to make progress and avoid delays.
 - c. Enforcing requirements for protection zones.
 - d. Arborist's responsibilities.
 - e. Quality-control program.
 - f. Coordination of Work and equipment movement with the locations of protection zones.
 - g. Trenching by hand or with air spade within protection zones.
 - h. Field quality control.

1.5 ACTION SUBMITTALS

- A. Product Data:
 - 1. General protection and pruning of existing trees and plants that are affected by execution of the Work, whether temporary or permanent construction
- B. Shop Drawings:
 - 1. Include plans showing trees and plants to be protected, locations of protection-zone fencing and signage, and the relationship between equipment-movement routes and material storage locations with protection zones.
 - 2. Indicate extent of utility boring and trenching by hand or with air spade within protection zones.
- C. Tree-Pruning Schedule: Written schedule detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.
 - 1. Species and size of tree.
 - 2. Location on site plan. Include unique identifier for each.
 - 3. Reason for pruning.
 - 4. Description of pruning to be performed.
 - 5. Description of maintenance following pruning.
- D. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Statements: For arborist and tree service firm.
- B. Certification: From arborist, certifying that trees indicated to remain have been protected during construction in accordance with recognized standards and that trees were promptly and properly treated and repaired when damaged.
- C. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.
- D. Existing Conditions: Documentation of existing trees and plantings indicated to remain, which establishes preconstruction conditions that might be misconstrued as damage caused by construction activities.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plants designated to remain.
- E. Quality-control program.

1.7 QUALITY ASSURANCE

- A. Arborist Qualifications: Certified Arborist as certified by ISA and Licensed in jurisdiction where Project is located.
- B. Tree-Service Firm Qualifications: An experienced tree-service firm that has successfully completed temporary tree- and plant-protection work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of the Work.
- C. Quality-Control Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work without damaging trees and plantings. Include dimensioned diagrams for placement of protection-zone fencing and signage, the arborist's and tree-service firm's responsibilities, instructions given to workers on the use and care of protection zones, and enforcement of requirements for protection zones.

1.8 FIELD CONDITIONS

- A. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Moving or parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.

- B. Do not direct vehicle or equipment exhaust toward protection zones.
- C. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones and organic mulch.
- D. Take precautions to protect plants from airborne contaminants, such as paint or fireproofing overspray.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Topsoil: Natural or cultivated top layer of the soil profile or manufactured topsoil; containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch in diameter; and free of weeds, roots, and toxic and other non-soil materials.
 - 1. Obtain topsoil only from well-drained sites where topsoil is 4 inches deep or more; do not obtain from bogs or marshes.
 - 2. Stockpiled topsoil from project site and imported or manufactured topsoil complying with ASTM D 5268.
- B. Organic Mulch: Free from deleterious materials and suitable as a top dressing for trees and shrubs, consisting of one of the following:
 - 1. Type: Shredded hardwood.
 - 2. Size Range: 3 inches maximum, 1/2 inch minimum.
 - 3. Color: Natural.
- C. Protection-Zone Fencing: Fencing fixed in position and meeting the following requirements:
 - 1. Plastic Protection-Zone Fencing: Plastic construction fencing constructed of high-density extruded and stretched polyethylene fabric with 2-inch maximum opening in pattern and weighing a minimum of 0.4 lb/ft.; remaining flexible from minus 60 to plus 200 deg F; inert to most chemicals and acids; minimum tensile yield strength of 2000 psi and ultimate tensile strength of 2680 psi; secured with plastic bands or galvanized-steel or stainless steel wire ties; and supported by tubular or T-shape galvanized-steel posts spaced not more than 96 inches apart.
 - a. Height: 48 inches.
 - b. Color: High-visibility orange, nonfading.
- D. Protection-Zone Signage: Shop-fabricated, rigid plastic or metal sheet with attachment holes prepunched and reinforced; legibly printed with nonfading lettering and as follows:
 - 1. Size and Text: As indicated on Drawings.
 - 2. Lettering: 3-inch-high minimum, black characters on white background.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Erosion and Sedimentation Control: Examine the site to verify that temporary erosion- and sedimentation-control measures are in place. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- B. Prepare written report, endorsed by arborist, listing conditions detrimental to tree and plant protection.

3.2 PREPARATION

- A. Locate and clearly identify trees, shrubs, and other vegetation to remain. Flag each tree trunk at 54 inches above the ground.
- B. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.3 TREE PROTECTION

- A. Tree-Protection Zones: Mulch areas inside tree-protection zones. Do not exceed indicated thickness of mulch.
 - 1. Apply 4-inch uniform thickness of organic mulch unless otherwise indicated. Do not place mulch within 6 inches of tree trunks.

3.4 PROTECTION ZONES

- A. Protection-Zone Fencing: Install protection-zone fencing along edges of protection zones before materials or equipment are brought on the site and construction operations begin in a manner that will prevent people and animals from easily entering protected areas except by entrance gates. Construct fencing so as not to obstruct safe passage or visibility at vehicle intersections where fencing is located adjacent to pedestrian walkways or in close proximity to street intersections, drives, or other vehicular circulation.
 - 1. Posts: Set or drive posts into ground one-third the total height of the fence without concrete footings. Where a post is located on existing paving or concrete to remain, provide appropriate means of post support acceptable to Designer.
 - 2. Plastic Fencing: Stretch fabric taut and secure to posts without bows or sags.
- B. Protection-Zone Signage: Install protection-zone signage in visibly prominent locations in a manner approved by Designer. Install one sign spaced approximately every 50 ft. on protection-zone fencing, but no fewer than four signs with each facing a different direction.

- C. Maintain protection zones free of weeds and trash.
- D. Maintain hydration of plants to assure plant survival.
- E. Maintain protection-zone fencing and signage in good condition as acceptable to Designer and remove when construction operations are complete, and equipment has been removed from the site.
 - 1. Do not remove protection-zone fencing, even temporarily, to allow deliveries or equipment access through the protection zone.
 - 2. Temporary access is permitted subject to preapproval in writing by arborist if a root buffer effective against soil compaction is constructed as directed by arborist. Maintain root buffer so long as access is permitted.

3.5 EXCAVATION

- A. General: Excavate at edge of protection zones and for trenches indicated within protection zones in accordance with requirements in Section 312000 "Earth Moving" unless otherwise indicated.
- B. Trenching within Protection Zones: Where utility trenches are required within protection zones, excavate under or around tree roots by hand or with air spade, or tunnel under the roots by drilling, auger boring, or pipe jacking. Do not cut main lateral tree roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots as required for root pruning. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots.
- C. Redirect roots in backfill areas where possible. If encountering large, main lateral roots, expose roots beyond excavation limits as required to bend and redirect them without breaking. If encountered immediately adjacent to location of new construction and redirection is not practical, cut roots approximately 3 inches back from new construction and as required for root pruning.
- D. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.6 ROOT PRUNING

- A. Prune tree roots that are affected by temporary and permanent construction. Prune roots as follows:
 - 1. Cut roots manually by digging a trench and cutting exposed roots with sharp pruning instruments; do not break, tear, chop, or slant the cuts. Do not use a backhoe or other equipment that rips, tears, or pulls roots.
 - 2. Cut Ends: Do not paint cut root ends.

3. Temporarily support and protect roots from damage until they are permanently covered with soil.
 4. Cover exposed roots with burlap and water regularly.
 5. Backfill as soon as possible in accordance with requirements in Section 312000 "Earth Moving."
- B. Root Pruning at Edge of Protection Zone: Prune tree roots 12 inches outside of the protection zone by cleanly cutting all roots to the depth of the required excavation.
- C. Root Pruning within Protection Zone: Clear and excavate by hand or with air spade to the depth of the required excavation to minimize damage to tree root systems. If excavating by hand, use narrow-tine spading forks to comb soil to expose roots. Cleanly cut roots as close to excavation as possible.

3.7 CROWN PRUNING

- A. Prune branches that are affected by temporary and permanent construction. Prune branches as directed by arborist.
1. Prune to remove only injured, broken, dying, or dead branches unless otherwise indicated. Do not prune for shape unless otherwise indicated.
 2. Do not remove or reduce living branches to compensate for root loss caused by damaging or cutting root system.
 3. Pruning Standards: Prune trees in accordance with ANSI A300 (Part 1).
 - a. Type of Pruning: Cleaning, raising, reducing, and thinning.
 - b. Specialty Pruning: Structural, restoration, vista, and utility.
- B. Unless otherwise directed by arborist and acceptable to Designer, do not cut tree leaders.
- C. Cut branches with sharp pruning instruments; do not break or chop.
- D. Do not paint or apply sealants to wounds.
- E. Provide subsequent maintenance pruning during Contract period as recommended by arborist.
- F. Chip removed branches and dispose of off-site.

3.8 REGRADING

- A. Lowering Grade: Where new finish grade is indicated below existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.
- B. Raising Grade: Where new finish grade is indicated above existing grade around trees, slope grade beyond the protection zone. Maintain existing grades within the protection zone.

- C. Minor Fill within Protection Zone: Where existing grade is 2 inches or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.9 FIELD QUALITY CONTROL

- A. Inspections: Engage a qualified arborist to direct plant-protection measures in the vicinity of trees, shrubs, and other vegetation indicated to remain and to prepare inspection reports.

3.10 REPAIR AND REPLACEMENT

- A. General: Repair or replace trees, shrubs, and other vegetation indicated to remain or to be relocated that are damaged by construction operations, in a manner approved by Designer.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours in accordance with arborist's written instructions.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Designer.
- B. Trees: Remove and replace trees indicated to remain that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Designer determines are incapable of restoring to normal growth pattern.
 - 1. Small Trees: Provide new trees of same size and species as those being replaced for each tree that measures 4 inches or smaller in caliper size.
 - 2. Large Trees: Provide one new tree of 4-inch caliper size for each tree being replaced that measures more than 4 inches in caliper size.
 - a. Species: same as those being replaced.
 - 3. Plant and maintain new trees as specified in Section 329300 "Plants."
- C. Soil Aeration: Where directed by Designer, aerate surface soil compacted during construction. Aerate 10 ft. beyond drip line and no closer than 36 inches to tree trunk. Drill 2-inch diameter holes a minimum of 12 inches deep at 24 inches o.c. Backfill holes with an equal mix of augered soil and sand.

END OF SECTION 015639

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following administrative and procedural requirements: selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; product substitutions; and comparable products.

1.3 DEFINITIONS

- A. Products: Items purchased for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation, shown or listed in manufacturer's published product literature that is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.

1.4 SUBMITTALS

- A. Product List: Submit a list, in tabular form, showing specified products. Include generic names of products required. Include manufacturer's name and proprietary product names for each product.
 - 1. Coordinate product list with Contractor's Construction Schedule and the Submittals Schedule.
 - 2. Form: Tabulate information for each product under the following column headings:
 - a. Specification Section number and title.
 - b. Generic name used in the Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.

- g. Projected delivery date or time span of delivery period.
 - h. Identification of items that require early submittal approval for scheduled delivery date.
- 3. Initial Submittal: Within thirty (30) days after date of commencement of the Work, submit three (3) copies of initial product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - 4. Completed List: Within sixty (60) days after date of commencement of the Work, submit one (1) copy of completed product list. Include a written explanation for omissions of data and for variations from Contract requirements.
 - 5. Consultant's Action: Consultant will respond in writing to Contractor within fifteen (15) days of receipt of completed product list. Consultant's response will include a list of unacceptable product selections and a brief explanation of reasons for this action. Consultant's response, or lack of response, does not constitute a waiver of requirement that products comply with the Contract Documents.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft. Comply with manufacturer's written instructions.
 - 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 - 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 - 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 - 4. Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.
 - 5. Store products to allow for inspection and measurement of quantity or counting of units.
 - 6. Store materials in a manner that will not endanger Project structure.
 - 7. Store products that are subject to damage by the elements, under cover in a weather tight enclosure above ground, with ventilation adequate to prevent condensation.
 - 8. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
 - 9. Protect stored products from damage.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 016000

SECTION 017000 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes general procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.
 - 6. Correction of the Work.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section 013100 "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.
 - 2. Division 1, of the Technical Specifications Section 013300 "Submittal Procedures" for submitting surveys.
 - 3. Division 1, of the Technical Specifications Section 017310 "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.
 - 4. Division 1, of the Technical Specifications Section 017700 "Closeout Procedures" for submitting final property survey with Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.
 - 5. Division 1, of the Technical Specifications Section "Construction Waste Management" method of disposal of construction waste.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work.
 - 1. Before construction, verify the location and points of connection of utility services.
- B. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning site work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.
 - 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.
 - 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility, Owner, and Consultant that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Consultant, Owner, adjacent property owners not less than two (2) days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Consultant's and Owner's written permission.
- C. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- D. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

- E. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to Consultant. Include a detailed description of problem encountered, together with recommendations for modifications of the Contract Documents.

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Consultant promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
 - 1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 - 2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 - 3. Inform installers of lines and levels to which they must comply.
 - 4. Check the location, level and plumb, of every major element as the Work progresses.
 - 5. Notify Consultant when deviations from required lines and levels exceed allowable tolerances.
 - 6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
 - 7. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.
 - 8. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.
 - 9. Record Log: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Consultant.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
 - 1. Do not change or relocate existing benchmarks or control points without prior written approval of Consultant. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Consultant before proceeding.
 - 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold materials more than seven (7) days during normal weather or three (3) days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations. Dispose of material accordance to Division 1, Section "Construction Waste Management".
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Cutting and Patching: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials.
 - 1. Thoroughly clean surfaces and similar features before applying paint or other finishing materials.
- H. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.
- I. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration until Substantial Completion.

- J. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- K. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturers written instructions for temperature and relative humidity.

3.8 CORRECTION OF THE WORK

- A. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching."
 - 1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.
- B. Restore permanent facilities used during construction to their specified condition.
- C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.
- D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.
- E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017000

SECTION 017310 - CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes procedural requirements for cutting and patching.
- B. Related Sections include the following:
 - 1. Divisions 2 through 33 of the Technical Specifications Sections for specific requirements and limitations applicable to cutting and patching individual parts of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of existing construction necessary to permit installation or performance of other Work.
- B. Patching: Fitting and repair work required to restore surfaces to original conditions after installation of other Work.

1.4 QUALITY ASSURANCE

- A. Structural Elements: Do not cut and patch structural elements in a manner that could change their load-carrying capacity or load-deflection ratio.
- B. Operational Elements: Do not cut and patch the following operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
 - 1. Primary operational systems and equipment.
 - 2. Air or smoke barriers.
 - 3. Fire-protection systems.
 - 4. Control systems.
 - 5. Communication systems.
 - 6. Conveying systems.
 - 7. Electrical wiring systems.
 - 8. Operating systems of special construction in Division 13 Sections.

- C. Miscellaneous Elements: Do not cut and patch the following elements or related components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or those results in increased maintenance or decreased operational life or safety.
1. Water, moisture, or vapor barriers.
 2. Membranes and flashings.
 3. Exterior curtain-wall construction.
 4. Equipment supports.
 5. Piping, ductwork, vessels, and equipment.
 6. Noise- and vibration-control elements and systems.
- D. Visual Requirements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
1. If possible, retain original Installer or Fabricator to cut and patch exposed Work listed below. If it is impossible to engage original Installer or Fabricator, engage another recognized, experienced, and specialized firm.
 - a. Processed concrete finishes.
 - b. Stonework and stone masonry.
 - c. Ornamental metal.
 - d. Matched-veneer woodwork.
 - e. Preformed metal panels.
 - f. Roofing.
 - g. Firestopping.
 - h. Window wall system.
 - i. Stucco and ornamental plaster.
 - j. Terrazzo.
 - k. Finished wood flooring.
 - l. Fluid-applied flooring.
 - m. Aggregate wall coating.
 - n. Wall covering.
 - o. Swimming pool finishes.
 - p. HVAC enclosures, cabinets, or covers.

1.5 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during cutting and patching operations, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections of the Technical Specifications.
- B. Existing Materials: Use materials identical to existing materials. For exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will match the visual and functional performance of existing materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces to be cut and patched and conditions under which cutting and patching are to be performed.
 - 1. Compatibility: Before patching, verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
 - 2. Proceed with installation only after unsafe or unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Temporary Support: Provide temporary support of Work to be cut.
- B. Protection: Protect existing construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- C. Adjoining Areas: Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

3.3 PERFORMANCE

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut existing construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

- B. Cutting: Cut existing construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Existing Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 2 Sections where required by cutting and patching operations.
 5. Proceed with patching after construction operations requiring cutting are complete.
- C. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other Work. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of the Technical Specifications.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will eliminate evidence of patching and refinishing.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove existing floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, apply primer and intermediate paint coats over the patch and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 4. Ceilings: Patch, repair, or re-hang existing ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weather tight condition.
 6. Fire Rated Assembly: If fire rated assembly is cut, damaged or modified as part of this project, patch or repair fire rated assembly with the correct materials to preserve the assembly's fire rating.

END OF SECTION 329300

SECTION 017419 – CONSTRUCTION WASTE MANAGEMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. The Contractor, Subcontractors, and/or suppliers providing goods and services referenced in or related to this section shall be bound by the documents and general provisions of the Contract, including the General and Supplementary Conditions, Division 00 Procurement and Contracting Requirements and Division 01 General Requirements in their entirety.

1.2 DESCRIPTION

- A. The Owner has established that this Project shall include proactive measures for waste management participation by all parties to the contract.
 - 1. The purpose of this program is to ensure that during the course of the Project all diligent means are employed to pursue practical and economically feasible waste management and recycling options.
 - 2. Upon award, each subcontractor shall be required to furnish documentation from suppliers or manufacturers regarding waste management and recycling options for those products and procedures furnished.
 - 3. Waste disposal to landfills shall be minimized.
- B. Definitions:
 - 1. Waste: Any material that has reached the end of its intended use. Waste includes salvageable, returnable, recyclable and reusable material.
 - 2. Construction waste: Solid wastes including, but not limited to, building materials, packaging materials, debris and trash resulting from construction operations.
 - 3. Salvage: To remove a waste material from the Project site to another site for resale or reuse by others.
 - 4. Hazardous waste: Any material or byproduct of construction that is regulated by the Environmental Protection Agency and that may not be disposed in any landfill or other waste end-source without adherence to applicable laws.
 - 5. Trash: Any product or material unable to be returned, reused, recycled or salvaged.
 - 6. Landfill: Any public or private business involved in the practice of trash disposal.
 - 7. Waste Management Plan: A Project-related plan for the collection, transportation, and disposal of the waste generated at the construction site.

1.3 SUBMITTALS:

A. Project Information:

1. Contractor's Construction Waste Management Plan.

1.4 CONSTRUCTION WASTE MANAGEMENT PLAN

A. Waste Management Plan shall include the following:

1. Solid Waste Disposal and Diversion document.
 - a. Identification of materials recycled.
 - b. Identification of materials landfill.
 - c. Identification of hazardous wastes and disposal.
2. Locations of sorting and waste storage facilities on Site Plan of project.
3. Final documentation of subcontractor/supplier waste management/recycling data.
4. Final documentation of hazardous waste disposal plan.

B. Construction Waste Management Plan Implementation:

1. The Contractor shall designate an on-site party (or parties) responsible for instructing workers and overseeing and documenting the Waste Management Plan.
2. The "Summary of Construction Waste/Recycling" shall be completed each month and submitted as part of Application For Payment.
 - a. All materials identified in the Summary shall be reported by weight.
 - b. Where weight is not applicable, Contractor shall report materials by units applicable to material recipient.
 - c. Contractor shall procure receipts or other validation of waste management procedures and include them as part of the submittal.
3. The Contractor shall distribute copies of the "Summary of Construction Waste / Recycling" to the Consultant, Owner and each subcontractor involved in the plan.
4. The Contractor shall provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse and return methods to be used by all parties at appropriate stages of the Work.
5. Separation facilities:
 - a. Contractor shall define specific areas to facilitate separation of materials for recycling, salvage, re-use or return.
 - b. Recycle and waste bin areas are to be maintained in an orderly manner and clearly marked to avoid contamination of materials.
 - c. Do not mix recyclable materials.
 - d. Store hazardous wastes in secure areas.

6. Hazardous wastes:

- a. Hazardous wastes shall be separated, stored and disposed of in accordance with local and EPA regulations and additional criteria listed below:

- 1) Building products manufactured with PVC or containing chlorinated compounds shall not be incinerated
- 2) Disposal of fluorescent tubes to open containers is not permitted.
- 3) Unused fertilizers shall not be co-mingled with construction waste.

C. Program profits:

1. All profits from recycling of construction waste shall be granted to the Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 017419

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Inspection procedures.
 - 2. Project As-Builts Documents.
 - 3. Operation and maintenance manuals.
 - 4. Warranties.
 - 5. Instruction of Owner's personnel.
 - 6. Final cleaning.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications Section 012900 "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.
 - 2. Division 1, of the Technical Specifications Section 013200 "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.
 - 3. Division 1, of the Technical Specifications Section 017000 "Execution Requirements" for progress cleaning of Project site.
 - 4. Division 1, of the Technical Specifications Section 017419 "Construction Waste Management" method of disposal of construction waste.
 - 5. Division 1, of the Technical Specifications Section 017839 "Project Record Documents".

1.3 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: The Contractor shall, before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.

3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
5. Prepare and submit Project Record Documents, "As-Builts" drawings operation and maintenance manuals.
6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
7. Complete startup testing of systems.
8. Submit test/adjust/balance records.
9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
10. Advise Owner of changeover in heat and other utilities.
11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
12. Complete final cleaning requirements, including touchup painting.
13. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements. Consultant will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Consultant, that must be completed or corrected before certificate will be issued. The Consultant's Substantial Completion list is composed by verification of the punch list submitted by the Contractor and any additional defects in the work observed by the Consultant.

1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
2. Results of completed inspection will form the basis of requirements for Final Completion.

1.4 FINAL COMPLETION

A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Division 1, of the Technical Specifications Section "Payment Procedures."
2. Submit certified copy of Consultant's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Consultant. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

4. Submit pest-control final inspection report and warranty.
 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training videotapes if required.
- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Consultant will either proceed with inspection or notify Contractor of unfulfilled requirements. Consultant will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Re-inspection: Request re-inspection when the Work identified in previous inspections as incomplete is completed or corrected.
 2. The Contractor shall take immediate steps to correct the stated deficiencies, and send a written notice to the Consultant, certifying the Project is complete, at which time the Consultant will re-inspect the Work. This review and additional reviews by the Consultant where the Work is not considered Substantial Completion or Final Completion will be considered an additional service from the Consultant. The Contractor will be charged for these additional services incurred by such failure including travel time, observation time, and administrative time at the Consultant's hourly rate, as well as all expenses associated with the distribution of a written notice stating the reasons for failure to reach final completion.
 3. In the event the Contractor is granted Substantial Completion by the Consultant and the Contractor fails to complete and/or correct all of the items listed in the Substantial Completion within thirty (30) calendar days of the date of Substantial Completion, the liquidated damages shall start to accrue until all of the items on the Substantial Completion list are completed and/or corrected and have been approved by the Consultant.
 4. If the Consultant is required to make more than two (2) inspections for the project to achieve Substantial Completion, the Contractor shall pay for the Consultant's time and expenses.

1.5 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

- A. Preparation: Submit one (1) copy of list. Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
1. Organize list of spaces in sequential order, use the room number as indicated on the drawings and on the exterior areas include a location diagram indicating the defects.
 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Consultant.
 - d. Name of Contractor.
 - e. Page number.

1.6 PROJECT RECORD DOCUMENTS

- A. The Contractor shall provide Project Record Documents, O&M, “As-Built” Drawings, and Warranties as indicated in Division 1, of the Technical Specifications Section “Project Record Documents.”

1.7 WARRANTIES

- A. Submittal Time: Submit written warranties on request of Consultant for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.
- B. Partial Occupancy: Submit properly executed warranties within fifteen (15) days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period.
- C. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
- D. Provide copies of each warranty to include in operation and maintenance manuals.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for certification of Substantial Completion for entire Project or for a portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Remove snow and ice to provide safe access to building.
 - f. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - g. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - h. Sweep concrete floors broom clean in unoccupied spaces.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision- obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.
 - 1) Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.
 - m. Wipe surfaces of mechanical and electrical equipment, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - n. Replace parts subject to unusual operating conditions.
 - o. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - p. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - q. Clean ducts, blowers, and coils if units were operated without filters during construction.

- r. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
 - s. Leave Project clean and ready for occupancy.
- C. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on Owner's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project site and dispose of lawfully.

END OF SECTION 017700

SECTION 01781 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and all Divisions of the Technical Specifications, apply to this Section.

1.2 SUMMARY

- A. This Section includes administrative and procedural requirements for Project Record Documents, including the following:
 - 1. As-Built Drawings.
 - 2. Record Specifications.
 - 3. Record Product Data.
- B. Related Sections include the following:
 - 1. Division 1, of the Technical Specifications, Section 017700 "Closeout Procedures" for general closeout procedures.
 - 2. Divisions 2 through 33, of the Technical Specifications, Sections for specific requirements for Project Record Documents of products in those Sections.

1.3 SUBMITTALS

- A. As-Built Drawings: Comply with the following:
 - 1. Number of Copies: Submit three (3) sets of marked-up As-Built Drawings to the Consultant for the Consultant to prepare the Record Drawings.
- B. Record Specifications: Submit three (3) copies of Project's marked up Specifications, including addenda and contract modifications.
- C. Record Product Data: Submit three (3) copies of each Product Data submittal.
 - 1. Where Record Product Data is required as part of operation and maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as Record Product Data.

PART 2 - PRODUCTS

2.1 AS-BUILT DRAWINGS

- A. As-Built Drawings: Maintain one set of black-line white prints of the Contract Drawings and Shop Drawings.
1. Preparation: Mark As-Built Drawings to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to prepare the marked-up As-Built Drawings.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it. Record and check the markup before enclosing concealed installations.
 2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Consultant's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 - o. Clarification Drawings.
 3. Mark the Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. If Shop Drawings are marked, show cross-reference on the Contract Drawings.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at the same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
 7. Identify and date each As-Built Drawing; include the designation "PROJECT AS-BUILTS DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

- B. Newly Prepared As-Built Drawings: Prepare new Drawings instead of preparing As- Built Drawings where Consultant determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. New Drawings may be required when a Change Order is issued as a result of accepting a substitution or other modification.
 - 2. Consult with Consultant for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared As-Built Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of the manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether Record Product Data has been submitted in operation and maintenance manuals instead of submitted as Record Product Data.
 - 5. Note related Change Orders, As-Built Drawings, and Product Data where applicable.

2.3 RECORD PRODUCT DATA

- A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
 - 3. Note related Change Orders, As-Built Drawings, and Product Data where applicable.

2.4 MISCELLANEOUS RECORD SUBMITTALS

- A. Assemble miscellaneous records required by other of the Technical Specifications Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for Project Record Document purposes. Post changes and modifications to Project Record Documents as they occur; do not wait until the end of Project.
- B. Maintenance of Record Documents and Samples: Store Record Documents and Samples in the field office apart from the Contract Documents used for construction. Do not use Project Record Documents for construction purposes. Maintain Record Documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to Project Record Documents for Consultant's reference during normal working hours.

END OF SECTION 017839

SECTION 033000 - CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Cast-in-place concrete, including concrete materials, mixture design, placement procedures, and finishes.

1.2 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash, slag cement, other pozzolans, and silica fume; materials subject to compliance with requirements.
- B. Water/Cement Ratio (w/cm): The ratio by weight of water to cementitious materials.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.
 1. Require representatives of each entity directly concerned with cast-in-place concrete to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Ready-mix concrete manufacturer.
 - d. Concrete Subcontractor.
 - e. Special concrete finish Subcontractor.
 2. Review the following:
 - a. Special inspection and testing and inspecting agency procedures for field quality control.
 - b. Construction joints, control joints, isolation joints, and joint-filler strips.
 - c. Semirigid joint fillers.
 - d. Vapor-retarder installation.
 - e. Anchor rod and anchorage device installation tolerances.
 - f. Cold and hot weather concreting procedures.
 - g. Concrete finishes and finishing.
 - h. Curing procedures.
 - i. Forms and form-removal limitations.

- j. Shoring and reshoring procedures.
- k. Methods for achieving specified floor and slab flatness and levelness.
- l. Floor and slab flatness and levelness measurements.
- m. Concrete repair procedures.
- n. Concrete protection.
- o. Initial curing and field curing of field test cylinders (ASTM C31/C31M.)
- p. Protection of field cured field test cylinders.

1.4 ACTION SUBMITTALS

A. Product Data: For each of the following.

- 1. Portland cement.
- 2. Fly ash.
- 3. Slag cement.
- 4. Blended hydraulic cement.
- 5. Silica fume.
- 6. Performance-based hydraulic cement
- 7. Aggregates.
- 8. Admixtures:
 - a. Include limitations of use, including restrictions on cementitious materials, supplementary cementitious materials, air entrainment, aggregates, temperature at time of concrete placement, relative humidity at time of concrete placement, curing conditions, and use of other admixtures.
- 9. Color pigments.
- 10. Fiber reinforcement.
- 11. Vapor retarders.
- 12. Floor and slab treatments.
- 13. Liquid floor treatments.
- 14. Curing materials.
 - a. Include documentation from color pigment manufacturer, indicating that proposed methods of curing are recommended by color pigment manufacturer.
- 15. Joint fillers.
- 16. Repair materials.

B. Design Mixtures: For each concrete mixture, include the following:

- 1. Mixture identification.
- 2. Minimum 28-day compressive strength.
- 3. Durability exposure class.
- 4. Maximum w/cm.
- 5. Calculated equilibrium unit weight, for lightweight concrete.
- 6. Slump limit.
- 7. Air content.

8. Nominal maximum aggregate size.
9. Steel-fiber reinforcement content.
10. Synthetic micro-fiber content.
11. Indicate amounts of mixing water to be withheld for later addition at Project site if permitted.
12. Include manufacturer's certification that permeability-reducing admixture is compatible with mix design.
13. Include certification that dosage rate for permeability-reducing admixture matches dosage rate used in performance compliance test.
14. Intended placement method.
15. Submit alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

C. Shop Drawings:

1. Construction Joint Layout: Indicate proposed construction joints required to construct the structure.
 - a. Location of construction joints is subject to approval of the Architect.

D. Concrete Schedule: For each location of each Class of concrete indicated in "Concrete Mixtures" Article, including the following:

1. Concrete Class designation.
2. Location within Project.
3. Exposure Class designation.
4. Formed Surface Finish designation and final finish.
5. Final finish for floors.
6. Curing process.
7. Floor treatment if any.

1.5 INFORMATIONAL SUBMITTALS

A. Qualification Data: For the following:

1. Installer: Include copies of applicable ACI certificates.
2. Ready-mixed concrete manufacturer.
3. Testing agency: Include copies of applicable ACI certificates.

B. Material Certificates: For each of the following, signed by manufacturers:

1. Cementitious materials.
2. Admixtures.
3. Fiber reinforcement.
4. Curing compounds.
5. Floor and slab treatments.
6. Bonding agents.
7. Adhesives.

8. Vapor retarders.
9. Semirigid joint filler.
10. Joint-filler strips.
11. Repair materials.

C. Material Test Reports: For the following, from a qualified testing agency:

1. Portland cement.
2. Fly ash.
3. Slag cement.
4. Blended hydraulic cement.
5. Silica fume.
6. Performance-based hydraulic cement.
7. Aggregates.
8. Admixtures:

- a. Permeability-Reducing Admixture: Include independent test reports, indicating compliance with specified requirements, including dosage rate used in test.

D. Preconstruction Test Reports: For each mix design.

E. Field quality-control reports.

F. Minutes of preinstallation conference.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: A qualified installer who employs Project personnel qualified as an ACI-certified Flatwork Technician and Finisher and a supervisor who is a certified ACI Flatwork Concrete Finisher/Technician or an ACI Concrete Flatwork Technician with experience installing and finishing concrete, incorporating permeability-reducing admixtures.

1. Post-Installed Concrete Anchors Installers: ACI-certified Adhesive Anchor Installer.

B. Ready-Mixed Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.

1. Manufacturer certified in accordance with NRMCA's "Certification of Ready Mixed Concrete Production Facilities."

C. Laboratory Testing Agency Qualifications: A testing agency qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated and employing an ACI-certified Concrete Quality Control Technical Manager.

1. Personnel performing laboratory tests to be an ACI-certified Concrete Strength Testing Technician and Concrete Laboratory Testing Technician, Grade I. Testing agency

laboratory supervisor to be an ACI-certified Concrete Laboratory Testing Technician, Grade II.

- D. Field Quality-Control Testing Agency Qualifications: An independent agency, acceptable to authorities having jurisdiction, qualified in accordance with ASTM C1077 and ASTM E329 for testing indicated.
 - 1. Personnel conducting field tests to be qualified as an ACI Concrete Field Testing Technician, Grade 1, in accordance with ACI CPP 610.1 or an equivalent certification program.

1.7 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction testing on each concrete mixture.
 - 1. Include the following information in each test report:
 - a. Admixture dosage rates.
 - b. Slump.
 - c. Air content.
 - d. Seven-day compressive strength.
 - e. 28-day compressive strength.
 - f. Permeability.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Comply with ASTM C94/C94M and ACI 301.

1.9 FIELD CONDITIONS

- A. Cold-Weather Placement: Comply with ACI 301 and ACI 306.1 and as follows.
 - 1. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 2. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 3. Do not use frozen materials or materials containing ice or snow.
 - 4. Do not place concrete in contact with surfaces less than 35 deg F, other than reinforcing steel.
 - 5. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- B. Hot-Weather Placement: Comply with ACI 301 and ACI 305.1, and as follows:

1. Maintain concrete temperature at time of discharge to not exceed 95 deg F.
2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

1.10 WARRANTY

- A. Manufacturer's Warranty: Manufacturer agrees to furnish replacement sheet vapor retarder/termite barrier material and accessories for sheet vapor retarder/ termite barrier and accessories that do not comply with requirements or that fail to resist penetration by termites within specified warranty period.

1. Warranty Period: 10 years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless modified by requirements in the Contract Documents.

2.2 CONCRETE MATERIALS

A. Source Limitations:

1. Obtain all concrete mixtures from a single ready-mixed concrete manufacturer for entire Project.
2. Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant.
3. Obtain aggregate from single source.
4. Obtain each type of admixture from single source from single manufacturer.

B. Cementitious Materials:

1. Portland Cement: ASTM C150/C150M, Type I, gray.
2. Fly Ash: ASTM C618, Class C or F.
3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
4. Blended Hydraulic Cement: ASTM C595/C595M, Type IS, portland blast-furnace slag cement.

C. Normal-Weight Aggregates: ASTM C33/C33M, Class 3S coarse aggregate or better, graded. Provide aggregates from a single source.

1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.

D. Air-Entraining Admixture: ASTM C260/C260M.

- E. Chemical Admixtures: Certified by manufacturer to be compatible with other admixtures that do not contribute water-soluble chloride ions exceeding those permitted in hardened concrete. Do not use calcium chloride or admixtures containing calcium chloride in steel-reinforced concrete.
 - 1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 - 2. Retarding Admixture: ASTM C494/C494M, Type B.
 - 3. Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 - 5. High-Range, Water-Reducing and -Retarding Admixture: ASTM C494/C494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
 - 7. Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete and complying with ASTM C494/C494M, Type C.
 - 8. Non-Set-Accelerating Corrosion-Inhibiting Admixture: Commercially formulated, non-set-accelerating, anodic inhibitor or mixed cathodic and anodic inhibitor; capable of forming a protective barrier and minimizing chloride reactions with steel reinforcement in concrete.
- F. Water and Water Used to Make Ice: ASTM C94/C94M, potable

2.3 VAPOR RETARDERS

- A. Sheet Vapor Retarder, Class A: ASTM E1745, Class A; not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive tape.
- B. Sheet Vapor Retarder, Class C: ASTM E1745, Class C; not less than 10 mils thick. Include manufacturer's recommended adhesive or pressure-sensitive joint tape.
- C. Sheet Vapor Retarder/Termite Barrier: ASTM E1745, Class A, except with maximum water-vapor permeance of 0.03 perms; complying with ICC AC308. Include manufacturer's recommended adhesive or pressure-sensitive tape.
 - 1. Low-Temperature Flexibility: Pass at minus 15 deg F; ASTM D146/D146M.
 - 2. Puncture Resistance: 224 lbf minimum; ASTM E154/E154M.
 - 3. Water Absorption: 0.1 percent weight-gain maximum after 48-hour immersion at 70 deg F ; ASTM D570.
 - 4. Hydrostatic-Head Resistance: 231 feet minimum; ASTM D5385.

2.4 CURING MATERIALS

- A. Evaporation Retarder: Waterborne, monomolecular film forming, manufactured for application to fresh concrete.
- B. Absorptive Cover: AASHTO M 182, Class 2, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd. when dry.

- C. Moisture-Retaining Cover: ASTM C171, polyethylene film burlap-polyethylene sheet.
 - 1. Color:
 - a. Ambient Temperature Below 50 deg F: Black.
 - b. Ambient Temperature between 50 deg F and 85 deg F: Any color.
 - c. Ambient Temperature Above 85 deg F: White.
- D. Curing Paper: 8-feet- wide paper, consisting of two layers of fibered kraft paper laminated with double coating of asphalt.
- E. Water: Potable or complying with ASTM C1602/C1602M.

2.5 RELATED MATERIALS

- A. Expansion- and Isolation-Joint-Filler Strips: ASTM D1751, asphalt-saturated cellulosic fiber.
- B. Semirigid Joint Filler: Two-component, semirigid, 100 percent solids, in accordance with ASTM D2240.
- C. Bonding Agent: ASTM C1059/C1059M, Type II, nonredispersible, acrylic emulsion or styrene butadiene.
- D. Epoxy Bonding Adhesive: ASTM C881, two-component epoxy resin, capable of humid curing and bonding to damp surfaces, of class suitable for application temperature and of grade and class to suit requirements, and as follows:
 - 1. Types I and II, nonload bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.6 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, in accordance with ACI 301.
 - 1. Use a qualified testing agency for preparing and reporting proposed mixture designs, based on laboratory trial mixtures.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash or Other Pozzolans: 25 percent by mass.
 - 2. Slag Cement: 50 percent by mass.
 - 3. Silica Fume: 10 percent by mass.
 - 4. Total of Fly Ash or Other Pozzolans, Slag Cement, and Silica Fume: 50 percent by mass, with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.

5. Total of Fly Ash or Other Pozzolans and Silica Fume: 35 percent by mass with fly ash or pozzolans not exceeding 25 percent by mass and silica fume not exceeding 10 percent by mass.
- C. Admixtures: Use admixtures in accordance with manufacturer's written instructions.
1. Use water-reducing admixture in concrete, as required, for placement and workability.
 2. Use water-reducing and -retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
 3. Use water-reducing admixture in pumped concrete
 4. Use corrosion-inhibiting admixture in concrete mixtures where indicated.
 5. Use permeability-reducing admixture in concrete mixtures where indicated.

2.7 CONCRETE MIXTURES

- A. Class A: Normal-weight concrete used for footings, grade beams, and tie beams.
1. Exposure Class: ACI 318 F0
 2. Minimum Compressive Strength: 3500 psi at 28 days.
 3. Maximum w/cm: 0.50.
 4. Slump Limit: 4 inches, plus or minus 1 inch.
 5. Slump Flow Limit: 22 inches, plus or minus 1.5 inches
 6. Air Content:
 - a. Exposure Class F1: 5.0 percent, plus or minus 1.5 percent at point of delivery for concrete containing 3/4-inch nominal maximum aggregate size 4.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-inch nominal maximum aggregate size] 4.5 percent, plus or minus 1.5 percent at point of delivery for concrete containing 1-1/2-inch nominal maximum aggregate size.
 7. Limit water-soluble, chloride-ion content in hardened concrete to 1.00 percent by weight of cement.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, mix, and deliver concrete in accordance with ASTM C94/C94M, and furnish batch ticket information.
- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete in accordance with ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.
1. For mixer capacity of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than five minutes after ingredients are in mixer, before any part of batch is released.
 2. For mixer capacity larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd..

3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixture time, quantity, and amount of water added. Record approximate location of final deposit in structure.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verification of Conditions:

1. Before placing concrete, verify that installation of concrete forms, accessories, and reinforcement, and embedded items is complete and that required inspections have been performed.
2. Do not proceed until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Provide reasonable auxiliary services to accommodate field testing and inspections, acceptable to testing agency, including the following:

1. Daily access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Secure space for storage, initial curing, and field curing of test samples, including source of water and continuous electrical power at Project site during site curing period for test samples.
4. Security and protection for test samples and for testing and inspection equipment at Project site.

3.3 INSTALLATION OF EMBEDDED ITEMS

A. Place and secure anchorage devices and other embedded items required for adjoining Work that is attached to or supported by cast-in-place concrete.

1. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor rods, accurately located, to elevations required and complying with tolerances in Section 7.5 of ANSI/AISC 303.
3. Install reglets to receive waterproofing and to receive through-wall flashings in outer face of concrete frame at exterior walls, where flashing is shown at lintels, shelf angles, and other conditions.

3.4 JOINTS

A. Construct joints true to line, with faces perpendicular to surface plane of concrete.

- B. Construction Joints: Coordinate with floor slab pattern and concrete placement sequence.
1. Install so strength and appearance of concrete are not impaired, at locations indicated on Drawings or as approved by Architect.
 2. Place joints perpendicular to main reinforcement.
 - a. Continue reinforcement across construction joints unless otherwise indicated.
 - b. Do not continue reinforcement through sides of strip placements of floors and slabs.
 3. Form keyed joints as indicated. Embed keys at least 1-1/2 inches into concrete.
 4. Locate joints for beams, slabs, joists, and girders at third points of spans. Offset joints in girders a minimum distance of twice the beam width from a beam-girder intersection.
 5. Locate horizontal joints in walls and columns at underside of floors, slabs, beams, and girders and at the top of footings or floor slabs.
 6. Space vertical joints in walls as indicated on Drawings. Unless otherwise indicated on Drawings, locate vertical joints beside piers integral with walls, near corners, and in concealed locations where possible.
 7. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 8. Use epoxy-bonding adhesive at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
- C. Control Joints in Slabs-on-Ground: Form weakened-plane control joints, sectioning concrete into areas as indicated. Construct control joints for a depth equal to at least one-fourth of concrete thickness as follows:
1. Grooved Joints: Form control joints after initial floating by grooving and finishing each edge of joint to a radius of 1/8 inch. Repeat grooving of control joints after applying surface finishes. Eliminate groover tool marks on concrete surfaces.
 2. Sawed Joints: Form control joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action does not tear, abrade, or otherwise damage surface and before concrete develops random cracks.
- D. Isolation Joints in Slabs-on-Ground: After removing formwork, install joint-filler strips at slab junctions with vertical surfaces, such as column pedestals, foundation walls, grade beams, and other locations, as indicated.
1. Extend joint-filler strips full width and depth of joint, terminating flush with finished concrete surface unless otherwise indicated on Drawings.
 2. Terminate full-width joint-filler strips not less than 1/2 inch or more than 1 inch below finished concrete surface, where joint sealants are indicated.
 3. Install joint-filler strips in lengths as long as practicable. Where more than one length is required, lace or clip sections together.
- E. Doweled Joints:
1. Install dowel bars and support assemblies at joints where indicated on Drawings.

2. Lubricate or asphalt coat one-half of dowel bar length to prevent concrete bonding to one side of joint.

- F. Dowel Plates: Install dowel plates at joints where indicated on Drawings.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, embedded items, and vapor retarder is complete and that required inspections are completed.
 1. Immediately prior to concrete placement, inspect vapor retarder for damage and deficient installation, and repair defective areas.
 2. Provide continuous inspection of vapor retarder during concrete placement and make necessary repairs to damaged areas as Work progresses.
- B. Notify Architect and testing and inspection agencies 24 hours prior to commencement of concrete placement.
- C. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect in writing, but not to exceed the amount indicated on the concrete delivery ticket.
 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- D. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301, but not to exceed the amount indicated on the concrete delivery ticket.
 1. Do not add water to concrete after adding high-range water-reducing admixtures to mixture.
- E. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete is placed on concrete that has hardened enough to cause seams or planes of weakness.
 1. If a section cannot be placed continuously, provide construction joints as indicated.
 2. Deposit concrete to avoid segregation.
 3. Deposit concrete in horizontal layers of depth not to exceed formwork design pressures and in a manner to avoid inclined construction joints.
 4. Consolidate placed concrete with mechanical vibrating equipment in accordance with ACI 301.
 - a. Do not use vibrators to transport concrete inside forms.
 - b. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer.
 - c. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity.

- d. At each insertion, limit duration of vibration to time necessary to consolidate concrete, and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- F. Deposit and consolidate concrete for floors and slabs in a continuous operation, within limits of construction joints, until placement of a panel or section is complete.
 - 1. Do not place concrete floors and slabs in a checkerboard sequence.
 - 2. Consolidate concrete during placement operations, so concrete is thoroughly worked around reinforcement and other embedded items and into corners.
 - 3. Maintain reinforcement in position on chairs during concrete placement.
 - 4. Screed slab surfaces with a straightedge and strike off to correct elevations.
 - 5. Level concrete, cut high areas, and fill low areas.
 - 6. Slope surfaces uniformly to drains where required.
 - 7. Begin initial floating using bull floats or darbies to form a uniform and open-textured surface plane, before excess bleedwater appears on the surface.
 - 8. Do not further disturb slab surfaces before starting finishing operations.

3.6 FINISHING FORMED SURFACES

- A. As-Cast Surface Finishes:
 - 1. ACI 301 Surface Finish SF-1.0: As-cast concrete texture imparted by form-facing material.
 - a. Patch voids larger than 1-1/2 inches wide or 1/2 inch deep.
 - b. Remove projections larger than 1 inch (25 mm).
 - c. Tie holes do not require patching.
 - d. Surface Tolerance: ACI 117 Class D.
 - e. Apply to concrete surfaces.
- B. Rubbed Finish: Apply the following to as cast surface finishes where indicated on Drawings:
 - 1. Smooth-Rubbed Finish:
 - a. Perform no later than one day after form removal.
 - b. Moisten concrete surfaces and rub with carborundum brick or another abrasive until producing a uniform color and texture.
 - c. If sufficient cement paste cannot be drawn from the concrete by the rubbing process, use a grout made from the same cementitious materials used in the in-place concrete.
 - d. Maintain required patterns or variances as shown on Drawings.
 - 2. Grout-Cleaned Rubbed Finish:
 - a. Clean concrete surfaces after contiguous surfaces are completed and accessible.
 - b. Do not clean concrete surfaces as Work progresses.

- c. Mix 1 part portland cement to 1-1/2 parts fine sand, complying with ASTM C144 or ASTM C404, by volume, with sufficient water to produce a mixture with the consistency of thick paint. Add white portland cement in amounts determined by trial patches, so color of dry grout matches adjacent surfaces.
 - d. Wet concrete surfaces.
 - e. Scrub grout into voids and remove excess grout. When grout whitens, rub surface with clean burlap, and keep surface damp by fog spray for at least 36 hours.
 - f. Maintain required patterns or variances as shown on Drawings.
- C. Trowel and Fine-Broom Finish: Apply a first trowel finish to surfaces indicated on Drawings. While concrete is still plastic, slightly scarify surface with a fine broom perpendicular to main traffic route.
 - 1. Coordinate required final finish with Architect before application.
 - 2. Comply with flatness and levelness tolerances for trowel-finished floor surfaces.
- D. Broom Finish: Apply a broom finish to exterior concrete platforms, steps, ramps, and locations indicated on Drawings.
 - 1. Immediately after float finishing, slightly roughen trafficked surface by brooming with fiber-bristle broom perpendicular to main traffic route.
 - 2. Coordinate required final finish with Architect before application.

3.7 INSTALLATION OF MISCELLANEOUS CONCRETE ITEMS

- A. Filling In:
 - 1. Fill in holes and openings left in concrete structures after Work of other trades is in place unless otherwise indicated.
 - 2. Mix, place, and cure concrete, as specified, to blend with in-place construction.
 - 3. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.8 CONCRETE CURING

- A. Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
 - 1. Comply with ACI 301 and ACI 306.1 for cold weather protection during curing.
 - 2. Comply with ACI 301 and ACI 305.1 for hot-weather protection during curing.
 - 3. Maintain moisture loss no more than 0.2 lb/sq. ft. x h before and during finishing operations.

3.9 TOLERANCES

- A. Conform to ACI 117.

3.10 JOINT FILLING

- A. Prepare, clean, and install joint filler in accordance with manufacturer's written instructions.
 - 1. Defer joint filling until concrete has aged at least one month(s).
 - 2. Do not fill joints until construction traffic has permanently ceased.
- B. Remove dirt, debris, saw cuttings, curing compounds, and sealers from joints; leave contact faces of joints clean and dry.
- C. Install semirigid joint filler full depth in saw-cut joints and at least 2 inches deep in formed joints.
- D. Overfill joint, and trim joint filler flush with top of joint after hardening.

3.11 CONCRETE SURFACE REPAIRS

- A. Defective Concrete:
 - 1. Repair and patch defective areas when approved by Architect.
 - 2. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of 1 part portland cement to 2-1/2 parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.
 - 1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete.
 - a. Limit cut depth to 3/4 inch.
 - b. Make edges of cuts perpendicular to concrete surface.
 - c. Clean, dampen with water, and brush-coat holes and voids with bonding agent.
 - d. Fill and compact with patching mortar before bonding agent has dried.
 - e. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 - 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement, so that, when dry, patching mortar matches surrounding color.

- a. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching.
 - b. Compact mortar in place and strike off slightly higher than surrounding surface.
3. Repair defects on concealed formed surfaces that will affect concrete's durability and structural performance as determined by Architect.
4. Repair random cracks and single holes 1 inch or less in diameter with patching mortar.
 - a. Groove top of cracks and cut out holes to sound concrete, and clean off dust, dirt, and loose particles.
 - b. Dampen cleaned concrete surfaces and apply bonding agent.
 - c. Place patching mortar before bonding agent has dried.
 - d. Compact patching mortar and finish to match adjacent concrete.
 - e. Keep patched area continuously moist for at least 72 hours.
- D. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- E. Repair materials and installation not specified above may be used, subject to Architect's approval.

3.12 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a special inspector to perform field tests and inspections and prepare testing and inspection reports.
- B. Testing Agency: Engage a qualified testing and inspecting agency to perform tests and inspections and to submit reports.
 1. Testing agency to be responsible for providing curing container for composite samples on Site and verifying that field-cured composite samples are cured in accordance with ASTM C31/C31M.
 2. Testing agency to immediately report to Architect, Contractor, and concrete manufacturer any failure of Work to comply with Contract Documents.
 3. Testing agency to report results of tests and inspections, in writing, to Owner, Architect, Contractor, and concrete manufacturer within 48 hours of inspections and tests.
 - a. Test reports to include reporting requirements of ASTM C31/C31M, ASTM C39/C39M, and ACI 301, including the following as applicable to each test and inspection:
 - 1) Project name.
 - 2) Name of testing agency.
 - 3) Names and certification numbers of field and laboratory technicians performing inspections and testing.
 - 4) Name of concrete manufacturer.
 - 5) Date and time of inspection, sampling, and field testing.

- 6) Date and time of concrete placement.
 - 7) Location in Work of concrete represented by samples.
 - 8) Date and time sample was obtained.
 - 9) Truck and batch ticket numbers.
 - 10) Design compressive strength at 28 days.
 - 11) Concrete mixture designation, proportions, and materials.
 - 12) Field test results.
 - 13) Information on storage and curing of samples before testing, including curing method and maximum and minimum temperatures during initial curing period.
 - 14) Type of fracture and compressive break strengths at seven days and 28 days.
- C. Batch Tickets: For each load delivered, submit three copies of batch delivery ticket to testing agency, indicating quantity, mix identification, admixtures, design strength, aggregate size, design air content, design slump at time of batching, and amount of water that can be added at Project site.
- D. Inspections:
1. Headed bolts and studs.
 2. Verification of use of required design mixture.
 3. Concrete placement, including conveying and depositing.
 4. Curing procedures and maintenance of curing temperature.
 5. Verification of concrete strength before removal of shores and forms from beams and slabs.
 6. Batch Plant Inspections: On a random basis, as determined by Architect.
- E. Concrete Tests: Testing of composite samples of fresh concrete obtained in accordance with ASTM C 172/C 172M to be performed in accordance with the following requirements:
1. Testing Frequency: Obtain one composite sample for each day's pour of each concrete mixture exceeding 5 cu. yd., but less than 25 cu. yd., plus one set for each additional 50 cu. yd. or fraction thereof.
 - a. When frequency of testing provides fewer than five compressive-strength tests for each concrete mixture, testing to be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 - b. Perform additional tests when concrete consistency appears to change.
 3. Slump Flow: ASTM C1611/C1611M:
 - a. One test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture.

- b. Perform additional tests when concrete consistency appears to change.
- 4. Air Content: ASTM C231/C231M pressure method, for normal-weight concrete.
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
- 5. Concrete Temperature: ASTM C1064/C1064M:
 - a. One test hourly when air temperature is 40 deg F and below or 80 deg F and above, and one test for each composite sample.
- 6. Unit Weight: ASTM C567/C567M fresh unit weight of structural lightweight concrete.
 - a. One test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
- 7. Compression Test Specimens: ASTM C31/C31M:
 - a. Cast and laboratory cure two sets of two 6-inch by 12-inch cylinder specimens for each composite sample.
- 8. Compressive-Strength Tests: ASTM C39/C39M.
 - a. Test one set of two laboratory-cured specimens at seven days and one set of two specimens at 28 days.
 - b. A compressive-strength test to be the average compressive strength from a set of two specimens obtained from same composite sample and tested at age indicated.
- 9. When strength of field-cured cylinders is less than 85 percent of companion laboratory-cured cylinders, Contractor to evaluate operations and provide corrective procedures for protecting and curing in-place concrete.
- 10. Strength of each concrete mixture will be satisfactory if every average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength, and no compressive-strength test value falls below specified compressive strength by more than 500 psi if specified compressive strength is 5000 psi, or no compressive strength test value is less than 10 percent of specified compressive strength if specified compressive strength is greater than 5000 psi.
- 11. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- 12. Additional Tests:
 - a. Testing and inspecting agency to make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Architect.

- b. Testing and inspecting agency may conduct tests to determine adequacy of concrete by cored cylinders complying with ASTM C42/C42M or by other methods as directed by Architect.
 - 1) Acceptance criteria for concrete strength to be in accordance with ACI 301 , Section 1.6.6.3.
- 13. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- 14. Correct deficiencies in the Work that test reports and inspections indicate do not comply with the Contract Documents.

3.13 PROTECTION

A. Protect concrete surfaces as follows:

- 1. Protect from petroleum stains.
- 2. Diaper hydraulic equipment used over concrete surfaces.
- 3. Prohibit vehicles from interior concrete slabs.
- 4. Prohibit use of pipe-cutting machinery over concrete surfaces.
- 5. Prohibit placement of steel items on concrete surfaces.
- 6. Prohibit use of acids or acidic detergents over concrete surfaces.
- 7. Protect liquid floor treatment from damage and wear during the remainder of construction period. Use protective methods and materials, including temporary covering, recommended in writing by liquid floor treatments installer.
- 8. Protect concrete surfaces scheduled to receive surface hardener or polished concrete finish using Floor Slab Protective Covering.

END OF SECTION 033000

SECTION 131113 - POOL GENERAL

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Project administrative requirements that relate to Division 13 11 Pools.

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.
- B. The following contain requirements that relate in Division 13 11:
 - 1. Mechanical/Electrical/Equipment Coordination: General Conditions, Supplementary General Conditions and Division 01 General Requirements
 - 2. Earth Work and Pool Excavation: Division 31
 - 3. Concrete Deck Work: Division 32
 - 4. Mechanical: Plumbing Systems - Division 22, HVAC Systems and Equipment - Division 23
 - 5. Electrical: Division 26
- C. Applicable requirements of the following Codes and Standards apply to Work in Division 13 11:
 - 1. National Spa and Pool Institute (NSPI)
 - a. Minimum Standard for Public Swimming Pools
 - 2. National Electrical Code (NEC)
 - 3. National Sanitation Foundation (NSF): Seal of Approval Program
 - 4. American Society for Testing and Materials (ASTM): Specifications referenced herein
 - 5. Governmental Health and Building Codes
 - 6. ADA Accessibility Guidelines for Buildings and Facilities
 - 7. American National Standards Institute

1.3 REFERENCES

- A. Refer to individual Division 13 11 sections.

1.4 DESCRIPTION OF WORK

- A. Work of Division 13 11 includes, but is not limited to, the following:
 - 1. Layout of all pool(s) and pool related work required under Division 13 11.

2. Project benchmarks and control points.
3. Excavation and stone fill as required for pool tank structure and pipe trenching.
4. Refer to Division 01 and 31 for special conditions.
5. Pool structure, as detailed on Contract Drawings and Shop Drawings.
6. Pool mechanical systems, including piping and activity mechanical systems.
7. Pool finish.
8. Coordination of all electrical interlocks, controllers for pool and pool related equipment.
9. Miscellaneous pool testing, safety and control equipment.
10. Low voltage wiring for pool and pool related equipment is installed and connected by the Swimming Pool Contractor unless required otherwise by code. Where code requires that low voltage wiring is installed by a licensed electrical contractor, low voltage wiring is specified in Electrical Documents.
11. Please see drawings for owner supplied equipment from spray feature manufacturer. All owner purchased items must be fully coordinated, and installed by contractor.

B. Definitions

1. The term "pool" as used in Division 13 11 shall refer to the following:
 - a. Pool A = Spray Pad
2. The term "concrete" as used in Division 13 11 refers to concrete for pool construction only.
3. The term "Architect/Engineer" as used in Division 13 11 refers to the pool designer only.
4. The term "Contractor" as used in Division 13 11 refers to the pool contractor only.
5. The term "Low Voltage Wiring", as used in Division 13 11, includes wiring $\leq 24V$. All Low Voltage Wiring is Provided with the Equipment. Low voltage wiring is shown in Low Voltage Wiring Diagram included in the pool drawings except where specified by Electrical Consultant.
6. The term "Control Wiring" as used in Division 13 11 refers to connections from individual equipment components to the Building Management System (BMS).

C. Applicable Code, Permit and Inspection Responsibilities.

1. State and/or County Health Department permit fees by Owner. NOTE: DSPS permitting is not required.
2. Local Departments of Health inspection fees by Contractor.
3. Other permits/fees required paid by Contractor.
4. Scheduling of Required Inspections – Contractor
5. Documentation and Submission of accepted modifications to approved plans to Permit Authorities – Contractor.

D. Related Work Not in Division 13 11 Specified Elsewhere

1. Pool deck construction, including finishes, sealants, and drains.
2. Potable water or fresh water connection to feature manifold (see Contract Drawings).
3. Pool electrical work: Electrical connections shall be by the General Construction Contract Electrical Sub-Contractor. The Pool Contractor shall provide, controllers, solenoids, relays, motorized valves, etc., as shown on Contract Drawings and required

by pool systems equipment manufacturer. The Electrical Contractor shall install and wire electrical equipment furnished by the Pool Contractor and shall provide motor starters and disconnect switches as indicated or required by Codes. The Electrical Contractor shall provide grounding and bonding per NEC Article 680.

1.5 QUALITY ASSURANCE

- A. Qualifications of Pool Contractor: Work of Division 13 11 shall be performed by a contractor who has a minimum of five (5) projects with a proven five (5) year record of competence and experience in the construction of similar facilities of this size and complexity.
- B. Performance Criteria: Certain sections of Division 13 11 contain performance criteria rather than product descriptions. It shall be the obligation of the Pool Contractor to ensure that all criteria are satisfied and the burden or proof of conformance shall rest with the Pool Contractor. The Architect/Engineer shall require complete calculations, past performance records and, if required, inspection trips of similar facilities to substantiate conformance with these criteria. The Architect/Engineer shall be sole judge of conformance, and the Pool Contractor is cautioned that he will be required to provide a finished product meeting all stated criteria and meeting or exceeding Department of Public Health requirements.
- C. All work of Division 13 11 shall be performed by the qualified Pool Contractor or a Subcontractor to the qualified Pool Contractor unless otherwise pre-approved in writing by the Architect/Engineer. A representative of the Pool Contractor shall oversee work subcontracted by the Pool Contractor.
- D. The following shall be performed during construction of the project.
 - 1. Refer to General Conditions, Division 01, and other Division 13 11 sections for further requirements.

1.6 SUBMITTALS

- A. Submittals Required
 - 1. Refer to General Conditions, Division 01, and individual Division 13 11 sections for number required.
 - 2. The Contractor shall submit for approval to the Architect/Engineer complete lists, including descriptions, catalogs, product cut sheets, etc, fixtures and equipment to be furnished and installed as part of Division 13 11.
 - 3. Submittals shall adequately and completely describe the equipment, including where necessary or requested complete construction and installation dimensions, complete capacity and performance data, all accessories and auxiliary equipment and all pertinent details of manufacture.
 - 4. Submittals shall be provided complete and bound in a 3-ring binder or as pre-approved by Architect/Engineer or as required in division 1.
- B. Product Data: Provide manufacturer's/installer's written installation instructions.

C. Shop Drawings

1. The drawings accompanying this Specification are diagrammatic in nature and show the general arrangement of all equipment, piping, ductwork, services, etc. Because of the small scale of the drawings, it is not possible to show all offsets, fittings and accessories that may be required. The Contractor shall carefully investigate the structural and finish conditions of his work and shall arrange such work accordingly; furnishing all fittings, pipe and accessories that may be required to meet such conditions. Where conditions necessitate a rearrangement, the Contractor shall obtain the Architect/Engineer's approval.
2. Shop drawings for equipment shall be submitted, and Engineer's review of shop drawing shall be obtained before proceeding with fabrication. Shop drawings shall not be "doctored" reproductions of Architect/Engineer's drawings.

D. Samples: Submit samples of materials, finishes, and trim as requested by the Architect/Engineer.

E. Schedule of Values

1. Provide Architect/Engineer with a copy of the Schedule of Values developed for this project relevant to Division 13 11 for approval.

F. Valve Charts: Submit two (2) copies of valve charts for each piping system, consisting of Isometric Drawings or piping layouts showing and identifying each valve and describing its function to the Architect/Engineer for approval.

1. Upon completion of the Work, one (1) copy of each chart sealed to rigid backboard with clear lacquer placed under glass and framed, shall be hung in a conspicuous location in the equipment room.

G. Furnish to the Architect/Engineer the following:

1. Refer to individual Division 13 11 sections for additional requirements.
2. Submittals
 - a. Concrete Mix Design
 - b. Non-shrink Grouts
 - c. PVC and Preformed Plastic Adhesive Waterstop
 - d. Expansion/Construction Joint Materials
 - e. Caulking/Sealants
 - f. Valves
 - g. Piping Materials (pipe, fittings, solvents, cements)
 - h. Wall Sleeves and Seals for Piping
3. Shop Drawings
 - a. Reinforcing Steel
 - b. Water Activities

4. Test Results
 - a. Compaction
 - b. Piping Pressure Testing
5. Samples
6. Guarantees/Warranties
 - a. Standard 1-Year
 - b. Future 3-Days of Instruction and Operational Checkout
7. Close Out Documents
 - a. O & M Manuals
 - b. Record Drawings
 - c. Owner's Certification of Instruction
 - d. Extra Materials

1.7 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01.
- B. Along with the Shop Drawings, the Contractor shall submit, in duplicate, a certificate properly attested, stating the material, equipment, and construction comply with the requirements of the Contract Documents, for all equipment and materials proposed as a Substitute for the specified equipment and materials.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Refer to General Requirements and Division 01 of the Specifications for additional requirements.
- B. Deliver all materials and equipment to the work site in original packages, fully identified with manufacturer's label. Store off ground and protect from weather with a suitable covering.
- C. Protect plastic pipe from exposure to chemicals (aromatic hydrocarbons, halogenated hydrocarbons and other esters and ketones) that might attack the material. Protect all pipes from mechanical damage and long exposure to sunlight during storage.

1.9 WARRANTIES

- A. Warranty: Provide one (1) year warranty covering all pool workmanship, materials, and equipment. Refer to General Requirements and Division 01 of the Specifications for additional requirements.
- B. All standard manufacturer's warranties shall apply to all equipment and products provided by this Contractor.

PART 2 - PRODUCTS

2.1 NOT USED

PART 3 - EXECUTION

3.1 EQUIPMENT BASES AND SUPPORTS

- A. Provide for major equipment, reinforced concrete housekeeping bases poured directly on structural floor slabs (or as required by equipment manufacturer) 4 inches thick minimum; unless noted otherwise on plans, extended 4 inches beyond machinery bedplates. Provide templates, anchor bolts, vibration isolators, and accessories required for mounting and anchoring equipment. Anchorage system shall be in accordance with the equipment manufacturer's specifications and local code requirements. Consult with equipment manufacturer for length and installation of anchor bolts.

3.2 CLEAN UP AND PROTECTION

- A. After work of Division 13 11 has been completed, clean-up work areas and remove all equipment, excess materials, and debris. Protect pool from damage until substantial completion. Remove and replace equipment and finishes that are chipped, cracked, abraded, improperly adhered, or otherwise damaged.

END OF SECTION 131113

SECTION 131114 - POOL START-UP MAINTENANCE & OPERATIONS TRAINING

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Training of the Owner's personnel in Pool operations procedures.

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.

1.3 DESCRIPTION OF WORK

- A. Operations and maintenance instruction and manuals.
- B. Water Treatment and Balancing.

1.4 SUBMITTALS

- A. Operations and Maintenance (O&M) Manual

- 1. Pool Contractor shall deliver to the Architect/Engineer, bound together in a three-ring binder a complete manual, three (3) complete sets of operating and maintenance instructions for the swimming pool structure(s), finishes, and all component equipment. O&M Manual shall include, but is not limited to, the following:

- a. Table of contents.
- b. All equipment cut sheets.
- c. Accurate parts lists.
- d. Pool start-up, emptying, and winterization instructions.
- e. Pool cleaning instructions.
- f. Pool maintenance requirements, divided into the following:

- 1) Daily
- 2) Weekly
- 3) Monthly
- 4) Seasonally
- 5) Annually

- g. Narrative on the pool operation through all sequences.
- h. A DVD of complete start-up and shut-down procedures and training session.
- i. Trouble shooting information and procedures.

- j. A schematic of piping as installed.
- k. Valve charts for each piping system, consisting of isometric drawings or piping layouts showing and identifying each valve and describing its function.
- l. Record Drawings
- m. Warranties

PART 2 - MATERIALS

2.1 NOT USED

PART 3 - EXECUTION

3.1 OPERATIONS & MAINTENANCE INSTRUCTION

- A. Provide an experienced swimming pool operator-instructor (NSPI certified pool operator) for a period of not less than two (2) days; one (1) full day's operations and start-up, and one (1) full day shut-down assistance) after the pool has been filled and initially placed into operation.
 - 1. During this period the Owner's designated representative(s) shall be thoroughly instructed in all phases of the pool's operation, including start-up, emptying, and winterizing procedures.
 - 2. Prior to this instructor leaving the Site, instructor shall obtain written certification from the Owner's designated representative acknowledging that the instruction period has been completed and all necessary operating information provided, including but not limited to the activity controller programming.
- B. Include the cost of one (1) additional day of instruction and operational checkout/verification by an experienced swimming pool operator-instructor during the first year's operation.
- C. Provide a DVD documenting training and operational requirements, including start-up, emptying, and winterizing procedures.
- D. In addition to initial pool instruction listed, the Pool Contractor shall perform the first season pool closing (winterizing) and the following season pool start-up, including all labor and materials required.

END OF SECTION 131114

SECTION 131118 - POOL CONCRETE

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. This Section specifies cast-in-place concrete for pools and related structures, including formwork, reinforcement, concrete materials, mix design, placement procedures, and finishes.
- B. This Section of the Specifications covers the furnishings of all labor, materials, tools, equipment, and the performance of all Work and services necessary or incidental to furnish and place all concrete necessary as shown on the Drawings and as specified, in accordance with the provisions of the Contract Documents, and completely coordinated with the Work of all other trades.

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.

1.3 REFERENCES

- A. The following latest edition reference specifications, guides and standards shall become part of this Specification as if herein written. If provisions conflict, the more stringent provisions shall apply.
 - 1. ACI-318 – Building Code Requirements for Reinforced Concrete
 - 2. ASTM C172 – Methods for Sampling Fresh Concrete
 - 3. ASTM C31 – Making and Curing Concrete Test Specimens in the Field
 - 4. ASTM C39 – Compressive Strength of Cylindrical Concrete Specimens
 - 5. ASTM C143 – Standard Method of Test for Slump of Portland Cement Concrete
 - 6. ASTM C231 – Standard Method of Test for Air Content of Freshly Mixed Concrete by the Pressure Method
 - 7. ASTM C260 – Specification for Air-Entraining Admixtures for Concrete
 - 8. ASTM C494 – Specification for Chemical Admixture for Concrete
 - 9. ASTM C618 – Specification for Fly Ash and Raw or Calcinated Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
 - 10. ACI-304 – Recommended Practice for Measuring, Mixing, Transporting and Placing Concrete
 - 11. ACI-305 – Hot Weather Concreting
 - 12. ACI-306 – Recommended Practice for Cold Weather Concreting
 - 13. ACI-308 – Standard Practice for Curing Concrete
 - 14. CRD C-527 – Corps of Engineers Specifications for Polyvinylchloride Waterstop
 - 15. CRSI – Manual of Practice

16. CRSI 63 – Recommended Practice for Placing Reinforcing Bars
17. CRSI 65 – Recommended Practice for Placing Bar Supports, Specifications and Nomenclature

1.4 SUBMITTALS

- A. Product Data: For each type of manufactured material and product indicated.
- B. Design Mixes: For each concrete mix. Include alternate mix designs when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments. Indicate amounts of mix water to be withheld for later addition at Project site.
- C. Steel Reinforcement Shop Drawings: Details of fabrication, bending, and placement, prepared according to ACI 315. Include material, grade, bar schedules, stirrup spacing, bent bar diagrams, arrangement, and supports of concrete reinforcement. Include special reinforcement required for openings through concrete structures.
- D. Submit five copies of each to Architect/Engineer.

1.5 QUALITY ASSURANCE

- A. Concrete Work: All concrete work in Division 13 11, including formwork and reinforcing, shall comply with applicable requirements of Division 13 11.
- B. Qualifications of Pool Contractor
 1. Work of this Section shall be performed by a Contractor who has a proven record of competence and experience in the construction of similar facilities of this size and complexity for not less than 5 years. Contractors shall have an established record of reliability.
- C. The following tests shall be performed during construction of the project. Refer to General Conditions and Division 01 for further requirements.
 1. Concrete
 - a. Tests to measure slump, entrained air content and compressive strength shall be conducted by independent testing laboratory employed by the Owner.
 - 1) Provide minimum of four (4) test cylinders per 50 cubic yard or fraction thereof for each class of concrete poured each day. Comply with ACI-318, Subsection 4.3 (samples secured - ASTM C172, cylinders prepared and cured - ASTM C31, and tested - ASTM C39). Identify samples moist cure at 70 degrees F for five (5) days and ship samples to laboratory.
 - b. Slump and Air Content Tests

- 1) Perform on concrete from same batch as sampled for strength tests and whenever there is consistency of concrete. Slump tests shall be made in accordance with ASTM C143. Air content tests shall be made in accordance with ASTM C231. If measured slump or air content falls outside specified limits, check shall be made immediately on another portion of same sample. In event of second failure, concrete shall not be used in Work.

c. Compliance

- 1) Average of any three (3) consecutive strength tests for each class of concrete shall be equal to or greater than specified strength, and no individual test shall fall more than 500 psi below specified strength.
- 2) When tests results are below specified requirements or when tests of field cured cylinders indicate deficiencies in protection and curing, Architect/Engineer may require additional tests in accordance with ACI-318, Subsection 4.3.

2. Wet Mix Process Cylinder Sample

- a. Where automated wet mix equipment is used, test cylinders shall be taken from the mixer or ready-mix truck and tested in accordance with the requirements specified in this Section. Wet mix processes shall only be used with approved automated equipment.

1.6 SUBMITTALS

A. Submittals Required:

1. Refer to General Conditions, Division 01, and Section 13 1101.
2. Pool Finish Experience/Qualification Requirements
3. Concrete Mix Design
4. Non-Shrink Grouts
5. PVC and Preformed Plastic Adhesive Waterstop
6. Expansion/Construction Joint Materials
7. Caulking
8. Provide three (2) 3'x3' onsite mock-ups of light broom finish of varying grades of coarseness for Owner's approval. The pool contractor is responsible to coordinate owner approval of mock ups prior to the concrete placement.
9. Caulking

B. Shop Drawings Required:

1. Reinforcing Steel

C. Test Results:

1. Concrete Testing
2. Compaction

1.7 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Refer to General Requirements and Division 01.
- B. Deliver cementitious materials to work site in manufacturer's standard packages. Immediately upon delivery to work site, store in waterproof sheds. Sheds required shall be provided by the Pool Contractor. No cementitious or other material that has become caked or hardened will be permitted in the work.

1.9 WARRANTIES

- A. Special 2-Year on Concrete Structure: The Pool Contractor shall guarantee for two (2) years repair of the concrete pool structure.

PART 2 - PRODUCTS

2.1 CAST-IN-PLACE CONCRETE

- A. Admixtures: Air Entraining: Refer to ASTM C260.
- B. Concrete shall be ready-mixed conforming to ASTM C 94 and these Specifications. The use of non-agitating equipment will not be allowed.
- C. Fine Aggregates: Conform to ASTM C 33. Materials finer than the 200 sieve shall not exceed 4 percent. Use only clean, sharp, natural sand.
- D. Coarse Aggregate: Conform to ASTM C 33. Use only natural gravels, a combination of gravels and crushed gravels, crushed stone, or a combination of these materials containing no more than 15 percent flat or elongated particles (long dimension more than five times the short dimension). Materials finer than the 200 sieve shall not exceed 0.5 percent. Size of coarse aggregate shall be 3/4 inch on slabs and footings; 3/4 inch for walls. Approval of other aggregate gradations must be received in writing before use on the project.
- E. Portland cement shall be Type I, conforming to ASTM C150.
- F. Slump range shall be 2 to 4 inches and the air entrainment between 6 percent plus or minus 1.5% by volume. The water-cement ratio shall not exceed 0.49 by weight and the minimum cement content shall be 564 pounds per cubic yard - 6 bag mix. Submit complete data on the concrete mix for approval in conformance with the requirements of ASTM C 94, Alternate 2.
- G. The minimum allowable 28-day compressive field strength shall be 4000 psi when cured and tested in conformance with ASTM C 31 and C 39.

2.2 REINFORCING STEEL

- A. Use deformed bars of sizes shown on the drawings conforming to ASTM A 615 Grade 60.

2.3 REINFORCEMENT ACCESSORIES

- A. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars and welded wire fabric in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete or fiber-reinforced concrete of greater compressive strength than concrete.

2.4 CONCRETE ADMIXTURES

- A. Air-entraining admixture: Provide air-entraining admixture in all concrete. Admixture shall conform to ASTM C 260, except it shall be nontoxic after 30 days and shall contain no chlorides. Furnish manufacturer's compliance statement for these requirements to Architect/Engineer forty days prior to use.
- B. Water-Reducing Admixture: All concrete shall contain a water-reducing admixture. The admixture shall conform to ASTM C 494, Type A or Type D; except it shall contain no chlorides, shall be nontoxic after 30 days, and shall be compatible with the air-entraining admixtures. The amount of admixture added to the concrete shall be in accordance with the manufacturer's recommendations. Furnish a compliance statement that the admixture used satisfies all requirements of this Specification to Architect/Engineer forty days prior to use.

2.5 WATERSTOP

- A. Center bulb type, as shown on Drawings, extruded from an elastomeric plastic compound, the basic resin of which shall be polyvinyl chloride (PVC). The size shall be as shown. Specific gravity shall be approximately 1.37, and the Shore durometer Type A hardness approximately 80. No reclaimed PVC shall be used in the compound. Meet the performance requirements of CRD C-572.
- B. Waterstop shall have a constant thickness from the edge of the bulb to the outside edge. All waterstops shall have a number of parallel ribs or protrusions on each side of the center of the strip. Corrugated type or tapered waterstops are not acceptable. The minimum weight per foot for waterstop shall be 1.62 pounds for 3/8-inch by 6-inch and 2.30 pounds for 3/8-inch by 9-inch.
- C. Manufacturers and suppliers who have provided samples meeting the specified geometry and who have the specified waterstop readily available are listed below. A wire loop waterstop meeting the geometry requirements as listed below may be used by the Contractor, at his option, as an alternate to those listed. Waterstops that do not contain the wire loops are not acceptable. Other products shall not be used without prior review and acceptance by the Architect/Engineer.

1. Vinylex Corporation, 2636 Byington-Solway Road, Knoxville, Tennessee 37921-0887, phone: (615) 690-2211 or fax: (615) 691-6273; Catalog No. RB6-38H for the 6-inch by 3/8-inch and Catalog No. RB9-38H for the 9-inch by 3/8-inch.
2. Greenstreak Plastic Products, P.O. Box 7139, St. Louis, Missouri 63177, phone: (314) 225-9400 or fax: (314) 225-9854. These products are also distributed by the Burke Company, San Mateo, California. Style 732 for the 6-inch by 3/8-inch and Style 735 for the 9-inch by 3/8-inch.
3. Synko-Flex waterstop, where specifically called out on the drawings, shall be Synko-Flex Preformed Plastic Adhesive Waterstop with Synko-Flex primer or equal. Manufacturer: Henry Company, 800-486-1278. Products containing Bentonite clay or hydrophilic materials are prohibited.

2.6 NON-SHRINK GROUT

- A. Upcon High Flow, the Upco Company, Cleveland, Ohio; Master Flow 713, The Master Builder Company, Cleveland, Ohio; Crystex, L & M Construction Chemicals, Inc., Omaha, Nebraska.

2.7 GUN GRADE SEALANTS

- A. Two-part polysulfide sealant and primer certified by Manufacturer as suitable for use in pools including submerged locations. "Deck-O-Seal" and "P/G" solvent based primer as manufactured by W.R. Meadows or equal. Color shall be white.

PART 3 - EXECUTION

3.1 CAST-IN-PLACE CONCRETE

- A. Concrete shall be agitated by at least 70 revolutions of the mixing drum but not by more than 270 revolutions. Concrete shall be placed within 1-1/2 hours after the cement has been added to the mix.
- B. Provide concrete blocks of same strength as the concrete mix to support reinforcing bars. Do not use broken concrete, brick or stone.

3.2 WATERSTOP

- A. Split formwork is generally required for slab-to-slab, slab-to-wall and wall-to-wall joints where ribbed style waterstops are used. The centerline of the waterstop should be aligned with the center of the joint. The split form shall firmly hold the waterstop in position to prevent misalignment of waterstop during concrete placement. Secure waterstop with hog rings prior to concrete placement. Loop tie wires through the hog ring and tie off to adjacent reinforcing steel to prevent displacement of the waterstop during concrete placement. Fasteners through the body of the waterstop are not permitted.

- B. Lapping of the waterstop is not permitted. PVC waterstop may be butt spliced in the field with Teflon coated, thermostatically controlled splicing iron. Direct exposure to a flame is not permitted. Factory fabricated fittings are recommended for ells, tees and crosses.
- C. Thoroughly consolidate the concrete around the waterstop to prevent voids or honeycombing next to the waterstop. Maintain adequate clearance between reinforcing steel and the waterstop. Typical clearance should be twice the maximum aggregate size. Maintain continuity of the entire waterstop system. Properly store PVC waterstops prior to installation to prevent UV degradation

3.3 FORMWORK

- A. Forms: Materials shall produce tight forms and an acceptable finish.

3.4 WORKMANSHIP

- A. Forms: Construct forms accurately to dimensions and elevations required and to be strong and unyielding. Construct forms with tight joints to prevent the escape of mortar and to avoid the formation of fins. Brace as required to prevent distortion during concrete placement.
- B. Placing reinforcing steel: Place reinforcing steel in conformance with the information on the Contract Drawings and CRSI Recommended Practice for Placing Reinforcing Bars, except as modified herein. Minimum length of splices shall be as shown in table on Contract Drawings. Tie splices with 18-gauge annealed wire as specified in the referenced CRSI standard.
- C. Placing concrete:
 - 1. Prior to placing concrete, remove water from excavation and all debris and foreign material from forms. Check the reinforcing steel for proper placement and correct any discrepancies.
 - 2. Place concrete as soon as possible after leaving mixer, without segregation or loss of ingredients, without splashing forms or steel above, and in layers not over 2 feet deep. The vertical drop to final placement shall not exceed 6 feet. Placement shall conform to the requirements of ACI 318, except as modified herein.
 - 3. Do not place concrete when the ambient temperature is below 40 degrees F and falling without special protection. Any concrete damaged by freezing shall be removed and replaced at no additional cost to the Owner.
 - 4. Compaction: Apply approved vibrator at points spaced not farther apart than vibrator's effective radius. Apply close enough to forms to vibrate surface effectively but not damage form surfaces. Vibrate until concrete becomes uniformly plastic. Vibrator must penetrate the fresh placed concrete and into the previous layer of fresh concrete below.

3.5 FINISHING

- A. Provide light broom slip-resistant finish on all exposed concrete-see required mock-up requirements of this section.

- B. Screed surfaces of floor slabs and tops of exposed walls to true level planes. After the initial water has been absorbed, float and trowel with steel trowel. Provide light broom finish.
- C. Do not absorb wet spots with neat cement. Pool floors shall not vary from level or true plane more than 1/4 inch in 10 feet when measured with a straightedge.

3.6 FORM REMOVAL

- A. Remove after concrete has set sufficiently to carry the dead load and construction load it has to sustain. Remove forms with care to prevent scarring and damaging the surface.

3.7 PROTECTION AND CURING

- A. Protect fresh concrete from direct rays of the sun, drying winds and wash by rain. The method of water curing shall be the responsibility of the Contractor; however, the method used shall guarantee that all concrete surfaces remain wet to the touch, (free moisture present), at all times during the cure period.
- B. Wet cure shall be used conforming to ACI 308. Keep concrete slabs and wall continuously wet for a 7-day period. Intermittent wetting is not acceptable. Any product used shall be compatible with finish bond requirements.

3.8 PROTECTION OF ADJACENT SURFACES

- A. Contractor shall take every possible precaution to protect adjacent concrete surfaces, equipment, etc., from being damaged by overshooting concrete.

3.9 FINISHING FORMED SURFACES

- A. Areas not subject to water: Cut out all honeycombed and defective areas. Cut edges perpendicular to surface at least 1 inch deep, no feather edge allowed, and patch. Using bonding agent fill holes flush with cement mortar composed of 1 part cement and 2 parts sand. Rub surface with wood float and burlap. Keep patches damp for a minimum of seven days. Fill all form tie holes in same manner.
- B. Areas subject to water: Cut out all honeycombed and defective areas, cut edges perpendicular to surface at least 1 inch deep, no featheredge allowed, soak area to be patched for 24 hours, then allow surface to drain free of standing water, then patch with color matched non-shrink grout:
- C. The grout used shall be cured as recommended by grout manufacturer.

3.10 3.10 EXPANSION JOINTS

- A. The pre-molded expansion joint filler shall be of sufficient width to completely fill the joint. Filler shall be accurately cut to butt tightly against the waterstop and the side forms.
- B. At locations where joint sealant is to be applied, the pre-molded joint filler shall be precut to the required depth.
- C. Cavities for joint sealant shall be formed with either precut, pre-molded joint filler or smooth, accurately shaped material that can be removed.
- D. Concrete shall be thoroughly vibrated along the joint form to produce a dense, smooth surface. Surface irregularities along the joint sealant cavity, due to improper concrete consolidation or faulty form removal, shall be repaired with an approved compound compatible with the joint sealant in a manner that is satisfactory to the sealant manufacturer.
- E. Installation of Cellular Neoprene: Install in joint accurately as shown. Attach to concrete with a bonding agent approved in writing by the joint sealant and joint filler manufacturer for compatibility.
- F. All joints require gun grade sealant.

3.11 3.11 PLACING REINFORCING STEEL

- A. Place reinforcing steel in conformance with the information on the drawings and CRSI 63 and CRSI, except as modified herein. Minimum length of splices shall be as shown in table on drawings. Tie splices with 18-gauge annealed wire as specified in the referenced CRSI standard. All tie wires shall be "made tight" for electrical bonding purposes, as required by NEC, Article 680.

END OF SECTION 131118

SECTION 131120 - POOL PIPE AND PIPE FITTINGS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Pipe, pipe fittings, connections, wall penetrations.

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.

1.3 REFERENCES/PIPE – FITTING REQUIREMENTS

- A. The following latest edition reference specifications, guides and standards shall become part of this Specification as if herein written. If provisions conflict, the more stringent provisions shall apply.
 - 1. ANSI/ASTM D2564 - Solvent Cements and ASTM F656 – Primers for Polyvinyl Chloride (PVC) Plastic Pipe and Fittings
 - 2. ASTM D2855 – Practice for Making Solvent Cemented Joints with PVC Pipe and Fittings
 - 3. ANSI/ASTM D1785 – Standard Specification for Polyvinyl Chloride (PVC) Plastic Pipe Schedules 40, 80 and 120, NSF Seal for Potable Water
 - 4. ASTM D2466 – PVC Plastic Pipe Fittings, Schedule 40, Injection Molded, Sizes Through 12”, NSF Listed. As manufactured by Spears Manufacturing Company, “or approved equal”.
 - 5. ASTM D2467 – Socket Type PVC Plastic Pipe Fittings, Schedule 80, Injection Molded, Sizes through 12”, NSF Listed. As manufactured by Spears Manufacturing Company, “or approved equal”.
 - 6. ASTM F679 – PVC Large Diameter Plastic Gravity Sewer Pipe and Fittings, Bell Gasketed Joints, Sizes 18” Through 36”. As manufactured by J-M Manufacturing Co., Inc. “Perma-Loc”, “or approved equal”.
 - 7. ASTM B88 – Seamless Copper Water Tube
 - 8. Eslon Engineering Manual for Plastic Piping Systems
 - 9. ASTM D2563 – Fabricated, Fiberglass Wrapped PVC Pipe Fittings 12”, 14”, and above, Schedule 40 or 80 manufactured from PVC pipe conforming to ASTM D1785 and compliant to the most recent publication of the “Spears General Specification for Standard Fabricated Fittings (FAB-7-702)”. Butt-fusion welded fabricated fittings are not acceptable. All fittings shall be certified for potable water service by NSF. As manufactured by Spears Manufacturing Company or “approved equal”.
 - 10. CLASS 150 - All plastic pipe flanges shall be Class 150 and of the same schedule as the associated pipe with neoprene gaskets where required.

1.4 QUALITY ASSURANCE

A. Qualifications of Pool Contractor

1. Work of this Section shall be performed by a Contractor who has a proven record of competence and experience in the construction of similar facilities of this size and complexity for not less than 5 years. Contractors shall have an established record of reliability.

B. The following tests shall be performed during construction of the project. Refer to General Conditions and Division 01 for further requirements.

1. Testing and Flushing of Piping

- a. Contractor shall be responsible for discovering leaks and making necessary repairs.
 - 1) Pressure piping and suction piping: After the piece is laid, the joints completed and the trench partially backfilled, leaving joints exposed for examination, subject new lines to a hydrostatic pressure of not less than 50 pounds per square inch. Joints shall remain watertight under this pressure for a period of two (2) hours. All air must be expelled from pipes prior to testing.
 - 2) Gravity lines: A water test shall be applied to all gravity drain piping systems, either in their entirety or in sections. All openings shall be tightly plugged and each system filled with water and tested with at least a 10-foot head of water (4.3 psi). The water shall be kept in the system, or in the portion under test, for at least fifteen (15) minutes before the inspection starts. System shall be water tight at all joints.
 - 3) Leaks shall be repaired and tested repeatedly until leakage or infiltration is approved.
- b. Provide test results to the Architect/Engineer before covering with concrete.

1.5 SUBMITTALS

- A. Refer to General Requirements and Division 01.
- B. Product Data: For each type of manufactured material and product indicated.
- C. Provide Shop Drawings showing pipe locations, location of pipe penetrating water tight walls, pipe sizes, how the system will be drained and the location of the drain valves.

1.6 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01.

PART 2 - PRODUCTS

2.1 PIPE and FITTINGS

- A. Refer to Section 1.03 for pipe and fitting requirements.
- B. Refer to pipe schedule(s) on drawings for size and type.

2.2 THREAD TAPE

- A. Teflon 2

2.3 SOLVENT CEMENTS AND PRIMERS

- A. PVC pipe shall be installed using solvent weld materials including primers, cleaners, and cements. All solvent weld materials, methods, and applicator tools shall conform to all ASTM Standards for solvent cements used for plastic pipe installations.
- B. Manufacturer: IPS Corporation, Weld-On Product Line

2.4 WALL SLEEVES

- A. Pipes penetrating all water tight walls shall use "Century Line" thermoplastic wall sleeves in combination with "Link Seals" having stainless steel service designation. As manufactured by Thunderline Corporation, or the Metraflex Company, "or approved equal".

2.5 NON-SHRINK GROUT

- A. Upcon High Flow, The Upco Company, Cleveland, Ohio; Masterflow 713, The Master Builder Company, Cleveland, Ohio; Crystex L & M Construction Chemicals, Inc., Omaha, Nebraska.

2.6 PIPE SIGNAGE

- A. Brady, B-946, custom legend, self-sticking markers and arrows or equal.

PART 3 - EXECUTION

3.1 PIPE INSTALLATION

- A. Excavation and Backfill
 - 1. Excavation for all pool systems and related piping.

- a. Comply with Division 31.
 2. Special backfill and bedding materials.
 - a. Existing subsoil materials shall not be used for pipe bedding.
 - b. All pipe shall be bedded with a minimum of 6" of clear stone material and a minimum of 2'-0" clear stone material top cover. The balance may be existing site material, provided no organic material, clay or topsoil is used.
- B. Piping Placement and Use
1. Base Bid shall be on pipe materials shown. See the PL Drawings and associated schedules for required pipe material types.
 2. All material transitions shall be above-grade, flange to flange connections and include ribbed EPDM type rubber gaskets. Below-grade materials transitions will not be allowed.
 3. Piping must be laid on a grade so it will drain completely by gravity. In all instances where gravity drainage is not provided, the contractor shall install drain valves so that all lines can be drained completely. Shop drawings will be required on any such installation.
 4. No installation shall be made that will provide a cross connection or inter-connection between distribution supply for drinking purposes and the swimming pool that will permit a backflow of water into the potable water supply. Pipe openings shall be closed with caps or plugs during installation. Equipment and pool fittings shall be tightly covered and protected against dirt, water and chemical or mechanical injury. At the completion of work the fittings, materials and equipment shall be thoroughly clean and adjusted for proper operation.
 5. All above grade outdoor piping shall be painted, in accordance with the manufacturer's recommendations, to protect against ultraviolet degradation.
- C. PVC Pipe
1. Cut all pipe with mechanical cutter without damage to pipe.
 2. Placing and laying: Inspect pipe for defects before installation. Clean the interior of pipe thoroughly of foreign matter and keep clean during laying operation. Pipe shall not be laid in water or when trench conditions are unstable. Water shall be kept out of the trench until the pipe is installed. When Work is not in progress, open ends of pipe and fittings shall be securely closed so that no trench water, earth or other substance will enter the pipes or fittings.
 3. Threaded joints: After cutting and before threading, the pipe shall be reamed and shall have burrs removed. Screw joints shall be made with graphite or inert filler and oil or with an approved graphite compound applied to male threads only. Threads shall be full-cut and not more than 3 threads on the pipe remained exposed. Use Teflon II tape on the male threads of all threaded pipe joints. Caulking of threaded joints to stop or prevent leaks will not be permitted. Unions shall be provided where required for disconnection of exposed piping. Unions will be permitted only where access is provided.
 4. All PVC pipe connections shall be flanged or solvent welded.

5. Solvent welded joints shall be made in accordance with the manufacturer's printed instructions and the following minimum standards:
 - a. All fittings shall fit easily on the pipe before applying cement. The outer surface area of pipe and inner wall of fitting shall be dry and clean. Cleaner is to be applied to the outer surface of the pipe and to the inner surface of the fitting. Cement is to be applied to the outer surface of the pipe, or on the male section of fittings only. When the outside surface area of the pipe is satisfactorily covered with cement allow ten (10) seconds open time to lapse before inserting pipe end into fittings. After full insertion of pipe into fitting, turn fitting about the pipe end approximately 1/8 to 1/4 of a turn. Wipe off excess cement at the joint in a neat cove bead. Follow manufacturer's instructions on solvents. Remove all debris, including, containers, brushes, applicators and other items from premises, dispose of properly. Burying of debris on site is not permitted.
 - b. In addition to the requirements outlined above, the solvent weld process for pipe sizes of 6" diameter and larger includes additional requirements outlined below. As pipe diameter increases, so does the difficulty in installing it. Follow all of the solvent weld manufacturer's recommendations for larger diameter pipe.
 - 1) The installer shall use proper size applicators to ensure enough cement is applied to fill the larger gap that exists between the pipe and fittings.
 - 2) Use the applicable cement for the size of pipe and fittings being installed.
 - 3) End of pipe must be cut square and chamfered (beveled).
 - 4) Provide adequate crew size to properly handle and fit pipe installations.
 - 5) It is important in large diameter joining that the primer and cement be applied simultaneously to the pipe and fittings. Apply a second, full layer of cement to the pipe. Pipe must be bottomed into the fitting.
 - 6) Large diameter pipe and fittings require longer set and cure times. Prefabricate as many joints as possible. If pipe is to be buried, fabricate as many joints as possible above ground, after joints have cured, carefully lower into trench.
 - c. All joints shall remain completely undisturbed for a minimum of 10 minutes from time of jointing the pipe and fitting. If necessary to apply pressure to a newly made joint, limit to 10% of rated pipe pressure, during the first 24 hours after the joint has been made.
 - d. Make provisions for expansion and contraction by way of swing joints or snaking.
 - e. Protect plastic pipe from exposure to aromatic hydrocarbons, halogenated hydrocarbons, and most of esters and ketones that attack the material. Protect all pipe from mechanical damage and long exposure to sunlight during storage.
 - f. PVC welding is not allowed without prior approval of the Architect/Engineer.

D. Field Coordination

1. It is the Contractor's responsibility to provide piping by means that account for all necessary coordination, including, but not limited to: routing, water stops, oversize sleeves, pipe supports, valves and other attachments, over-excavations required for fusion machinery or other equipment, etc.

2. Provide pipe extensions and temporary caps necessary for pressure testing requirements.
3. Contractor is required to provide coordination and adequate protection as needed to all external services (i.e. ducts, pipes, cables) that run throughout the project site. Plumbing shall be located and placed to prevent damage during and after construction from traffic loads above.

E. Pipe Identification

1. Provide identification on all piping located in the manifold enclosure.
2. All piping description of line and arrows indicating direction of flow.
3. Mark at least once on each line and at 5 ft. intervals minimum. Consult Health Department Code for minimum marking requirements.
4. Color code per Health Department requirements. If code does not identify color coding requirements consult Architect/Engineer.

3.2 SLEEVES AND WALL PENETRATIONS

- A. Patch exterior side of wall penetrations with non-shrink grout. Other methods of water tightness shall be pre-approved by the Architect/Engineer.

END OF SECTION 131120

SECTION 131123 - POOL PIPE SUPPORTS

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Pipe Hangers & Supports

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.

1.3 SUBMITTALS

- A. Refer to General Requirements and Division 01.
- B. Product data including manufacturer's specifications, installation instructions.
- C. Shop Drawings showing type and locations

1.4 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01.

1.5 DELIVERY, STORAGE AND HANDLING

- A. Refer to General Requirements and Division 01.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Hangers and Supports

- 1. General

- a. All hangers, pipe supports, threaded rod, hardware, etc. shall be zinc plated or galvanized steel.

- 2. Strut

- a. Minimum height 1 5/8", minimum width 1 5/8", minimum thickness 12-gauge material.
 - b. Finish shall be hot-dip galvanized steel, ASTM A123; or type 304 stainless steel or better grade, ASTM A240.
- 3. Strut Clamps
 - a. Pipe sizes ½" thru 12", two-piece clamps with clamping bolt and nut. Pipe sizes 14" and larger, provide "U" bolts, nuts and washers.
 - b. Finish shall be hot-dip galvanized steel, ASTM A123; or type 304 stainless steel or better grade, ASTM A240.
- 4. Strut Accessories
 - a. Flat plate fittings, corner braces, post bases, etc. Finish shall be hot-dip galvanized steel, ASTM A123; or type 304 stainless steel or better grade, ASTM A240.
- 5. Wedge Anchors
 - a. One-piece assembly, 3/8" minimum body diameter.
 - b. Grade 2, zinc plated with stainless steel clips; or type 304 stainless steel or better grade, ASTM A240.
- 6. Beam Clamps
 - a. Steel "C" clamp type with locknut.
 - b. Finish shall be electro-plated galvanized; or type 304 stainless steel or better grade, ASTM A240.
- 7. Support Components
 - a. All threaded rod, threaded rod couplings, nuts, washers, etc. Finish shall be electro-plated galvanized; or type 304 stainless steel or better grade, ASTM A240.

PART 3 - EXECUTION

3.1 GENERAL

- A. All mechanical room piping must be properly supported using the schedule indicated on the drawings as a guideline for maximum allowable spacing between supports.
- B. It shall be the contractor's responsibility to properly support piping at all valves, pumps, equipment, overhead areas and changes in direction.
- C. All piping must be supported laterally as well as vertically hung.
- D. Ring, clevis, roller and J hook type hangers are not acceptable.

- E. Comply with manufacturer's written instructions

END OF SECTION 131123

SECTION 131124 - POOL VALVES

PART 1 - GENERAL

1.1 SECTION INCLUDES

- A. Butterfly Valves
- B. Ball Valves
- C. Check Valves
- D. Drainage Valves
- E. Reducers

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.

1.3 REFERENCES

- A. The following latest edition reference specifications, guides and standards shall become part of this Specification as if herein written. If provisions conflict, the more stringent provisions shall apply.
 - 1. ANSI – American National Standards Institute
 - 2. ASTM – American Society of Testing Materials

1.4 SUBMITTALS

- A. Refer to General Requirements and Division 01.
- B. Submit Shop Drawings, clearly indicating make, model, location, type, size, pressure rating, and type of service.
- C. Valve charts
 - 1. Submit two copies of valve charts for each piping system, consisting of isometric Drawings, or piping layouts showing and identifying each valve and describing its function to the Architect/Engineer for approval.

2. Upon completion of the Work, one copy of each valve chart sealed to rigid backboard with clear lacquer, placed under glass and framed, shall be hung in a conspicuous location in the equipment room.

1.5 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01.

1.6 DELIVERY, STORAGE AND HANDLING

- A. Refer to General Requirements and Division 01.

1.7 WARRANTIES

- A. Standard Manufacturer's Warranty

PART 2 - PRODUCTS

2.1 GENERAL

- A. Cast Iron valves 3" and larger shall have an epoxy coated body on all interior and exterior surfaces, ductile iron-nylon II coated disc, one piece 416 stainless steel shaft with Buna-N or EPDM seat minimum, 150 PSI rating, or cast aluminum ASTM S12A housing and fully coated with Rilsan on all interior and exterior surfaces. Internal components include EPDM resilient lining, Rilsan coated ductile iron disc and T304 stainless steel shaft. 150 psi rating.
- B. Cast Aluminum valves 3" and larger shall have an ASTM S12A body and coated with Rilsan on all interior and exterior surfaces. Internal components include Buna-N or EPDM resilient lining and seat, Rilsan coated ductile iron disc and T304 stainless steel shaft. 150 psi rating.
- C. Thermoplastic valves 3" and larger shall be constructed from PVC Type 1 Cell Classification 12454 or CPVC type 4 cell classification 23447. Thermoplastic valves shall include PVC disc with solid type 316L stainless steel shaft with Buna-N or EPDM seat pressure rated to 150 psi @ 73 degrees Fahrenheit.

2.2 BUTTERFLY VALVES

- A. Butterfly valves 3" - 12" shall be wafer or lug bodies and shall be suitable for use between ANSI 125 and 150 lb. Flanges.
- B. Bodies of the flangeless design shall be provided with at least two bolt guides to center the valve in the pipeline.
- C. All valves shall be as manufactured by Bray Valve (713) 894-5454, Dominion or equal.

POOL VALVES

- D. All bolts and nuts shall be corrosion resistant zinc plated steel with plated washers to be used when secured to PVC flanges.

2.3 BALL VALVES

- A. PVC True Union Ball Valves, Ipex, Asahi, Spears or equal.

2.4 CHECK VALVES

- A. ½" thru 2 ½" shall be PVC body, true union, ball type, seal material EPDM as manufactured by Ipex, Asahi Spears or equal as indicated on Contract Drawings.
- B. 3" thru 12" shall be cast iron epoxy coated body, bronze split disc, stainless steel fitted and Buna N seal material. Check valve shall be the CVXX style as manufactured by the Metraflex Company, model 5050 manufactured by Cameron Valves & Measurement, Series 8800 by Val-Matic or approved equal.

2.5 DRAINAGE VALVES

- A. Provide min. 3/4" True Union Ball valve on all piping at such a location to allow complete drainage of system.

2.6 REDUCERS

- A. Use Eccentric reducers on pump suction lines only and concentric reducers on pump discharge lines only.
- B. Stainless steel body and flanges, T304 materials, ANSI 125# rated flanges.
- C. Use Neptune Benson, 15-CNS/15ECS series "or equal".
- D. Provide valves of same manufacturer throughout where possible and practical.
- E. Provide valves with manufacturer's name and pressure rating clearly marked on outside of body.

2.7 VALVE LABELS

- A. Provide and install 2" round, 1/16" thick, multi-layered valve tags with contrasting lettering with non-corrosive beaded tie on all valves. All labels shall be labeled in accordance with the valve chart per Section 13 11 14.

PART 3 - EXECUTION

3.1 VALVE CONNECTIONS

- A. Provide valves suitable for connection to adjoining piping.
- B. Valve size shall be the same as the pipe size.

3.2 VALVE USE

- A. Pipe sizes 3" - 14" – Butterfly
- B. Miscellaneous valves 1/2" – 2-1/2" - PVC True Union Ball Valves
- C. All chemical lines and equipment - PVC True Union Ball Valves

3.3 VALVE OPERATORS

- A. All butterfly valves shall have gear operators and chain operators as required unless drawings indicate otherwise. Chain operators shall be required on all gear operators located 7'-0" or higher above finished floor
- B. Provide extension lengths as necessary to operate submerged or below surface valves and the appropriate valve box access cover.

END OF SECTION 131124

SECTION 131147 - POOL PLAY EQUIPMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Pool Play Specialty Equipment

1. Interactive spray and play equipment manufactured for use in swimming pools and/or spray pads.
2. Above ground and flush mounted aquatic spray/play equipment.

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.

1.3 REFERENCES

A. Pool Play Equipment shall:

1. Be designed by the manufacturer to meet all federal, state, and local requirements.
2. Meet applicable requirements of Consumer Product Safety Commission, ASTM, UL, and other applicable standards.
3. Comply with ASTM F2461, Standard Practice for Manufacture, Construction, Operation, and Maintenance of Aquatic Play Equipment
4. Comply with ASTM F1487 Standard Consumer Safety Performance Specification for Playground Equipment for Public Use
5. Comply with 2010 ADA Standards for Accessible Design
6. ASTM A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

1.4 DESCRIPTION OF WORK

- A. Refer to General Requirements and Division 01 of the Specifications for additional requirements.

1.5 QUALITY ASSURANCE

- A. Refer to General Requirements and Division 01 of the Specifications for additional requirements.
- B. Manufacturer's Qualifications:

1. Manufacturer shall have a minimum of 10 years of experience in the design, engineering, manufacture, and fabrication of pool play equipment and components. The person(s) responsible for installation shall have supervised/installed a minimum of 5 (Five) installations of a similar nature and scope to the installation described herein.
 2. Manufacturer shall provide independent and accredited certification that it applies a quality management system which meets the requirements of ISO 9001:2008 or ASTM F1193, manufacturing, sales, marketing and servicing of recreational aquatic products and accessories.
 3. The person(s) responsible for installation shall be on-site performing such service.
- C. Provide evidence of commitment of quality craftsmanship as demonstrated by the following:
1. Products shall be designed and produced at a facility owned and directly supervised by the supplier.
 2. A full-time licensed engineer must be on staff.
 3. A full-time quality control manager must be on staff.
 4. Established customer service department and a ready supply of replacement parts.

1.6 SUBMITTALS

- A. Refer to General Requirements and Division 01.
- B. Shop drawings:
1. Promptly after award of the contract, the contractor shall submit complete shop drawings to include, but not be limited to:
 - a. Location and sizes of pipe connections and spray fittings
 - b. Equipment flowrates and pressure demands
 - c. Required Safety equipment (landing pads, stanchions, etc.)
 - d. Required conventional footings, thickened slabs, fasteners and/or anchors as engineered by the manufacturer.
 - e. Materials of construction
 - f. Color Renderings of Thematic Finishes and Structures
 - g. Structure Elevations above Finished Grade and Required Clearances
 - h. Area of pool or pad requiring flat concrete work
 - i. Details of connections to sloping concrete work
 - j. Comprehensive Color Selection Work Sheet and Color Samples
 - k. Recommended safety signage
 2. Submittals for above grade features shall be certified and sealed by a structural engineer, licensed in the project state.
- C. Provide a printed, bound hard copy of the operation, maintenance and service instructions for the complete system including the following: operational functions as designed, scheduled maintenance, maintenance processes, start-up procedures, and winterization requirements.

1.7 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01.
- B. Pool Play Equipment, other than the basis of design, must be pre-approved for equivalency by the Owner and Engineer prior to bidding. Vortex, Whitewater West Industries, Splashtacular, Waterplay, Raindrop and Proslide shall be permitted manufacturers for equivalent substitutions.
- C. Above grade pool play equipment will be reviewed for thematic, aesthetic and play value equivalency.
 - 1. Spray and play elements shall provide similar spray patterns and/or interactive play value to the basis of design product.
 - 2. Substituted play equipment shall provide a cohesive theme to match the basis of design and complement the facility.
 - 3. Because form, aesthetics and theme are subjective in nature, the Owner shall have the ultimate approval authority for equivalent above grade specialty equipment.
- D. Submittal: Provide for review, a complete set of renderings and engineering shop drawings, photos of similar installations, hydraulic calculations, and specifications, prepared specifically for this project and submitted to the Engineer/Owner for review. Drawings shall include the located play structure with footings, pipe connections, safety zones and spray zones identified. Modifications required to electrical design, piping and surface drains design for use of the substituted products must be specifically identified as part of the submittal package. The proposed electrical panel modifications, hydraulic calculations, pipe size, pipe penetration layout, drain size and sump design shall be provided as part of the submittal.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Refer to General Requirements and Division 01.
- B. Product Delivery, Storage and Handling
 - 1. Pool play equipment must be properly wrapped and secured in place while in transit to the project site. Care shall be observed during offloading and handling to prevent excessive stress and abrasions.
 - 2. Store pool play equipment in safe areas, out of the way of traffic and other construction activities, until the actual time of the installation. If required, provide safety barricades or other like precautions for the protection of public and adjacent property.
 - 3. Unless otherwise required by the manufacturer, maintain safety wrapping through installation.
 - 4. Loading and unloading equipment, as required, shall be coordinated and provided by Contractor.
 - 5. Identifying and resolving shipping damage issues shall be the responsibility of the Contractor.

1.9 WARRANTIES

- A. Provide the minimum warranties as follows:
 - 1. All materials, components, and coatings to be warranted to be free from defects in workmanship or materials and free from defects arising from process of manufacture for a period of 1 year.
 - 2. The warranty period shall start at the time of substantial completion.
 - 3. All warranties are to be managed by the equipment manufacturer.

PART 2 - PRODUCTS

2.1 GENERAL

- A. Provide the equipment scheduled on the drawings, and any necessary fittings, anchors, and connectors as required and not provided by the manufacturer. The equipment shall be the manufacturer and design/model number listed on the drawings or a pre-approved substitution. Although unit quantities are shown, it is the installing contractor's responsibility to verify actual quantities required.
- B. Pool Play Equipment shall be suitable for installation in aquatic facilities and public play areas.
- C. Pool Play equipment shall be provided with Grounding / Bonding lugs compliant with NEC requirements.
- D. Safety and Craftsmanship
 - 1. All exposed edges of pool play equipment shall be machined to a rounded edge.
 - 2. All welds shall be grinded, polished, watertight, and factory pressure tested.
 - 3. Nozzles and Spray heads shall be recessed, flat or rounded to provide no protrusion hazard.
 - 4. All assembly and interactive pool play components shall be designed and built to ensure a completely safe play environment with no pinch, entrapment potential or protrusion hazard.
 - 5. All accessible posts and support posts shall have material covering the anchoring assembly and hardware.
 - 6. All products shall be designed in accordance with the latest ASTM and CPSC standards for aquatic play equipment.
- E. Provide manufacturer's recommended safety signage and AHJ required signage, rated for outdoor use, except where noted otherwise.

2.2 ABOVE GRADE POOL PLAY EQUIPMENT (Other than Climbable Aquatic Structures)

- A. Above grade pool play equipment shall be as shown and scheduled on the contract documents or substituted in accordance with 1.7.

B. Materials of Construction for Above Grade Specialty Equipment shall be:

1. Safety: Non-climbable, aquatic play features shall meet ADA compliance for handicap accessibility and meet or exceed current ASTM playground safety standards. Equipment must be designed and manufactured to prevent finger entrapment.
2. Steel Components: Factory Powder Coated, Type 304/304L Stainless Steel or hot-dipped galvanized for structural tubing and components. All curved support posts shall be smooth with no joints or ripples.
3. Fasteners: All fasteners and hardware shall be constructed of 304L/316L marine grade stainless steel. No unfinished plain steel hardware shall be allowed. Exposed and accessible hardware shall be tamper-resistant, requiring a special tool for removal.
4. Finish: Provide a factory installed finish that is UV, chemical resistant, damage resistant and suitable for public spaces.
 - a. Powder coat paint finish coatings shall be heat-cured super-durable powder coating.
 - b. Galvanized steel shall be hot-dipped galvanized, with catalyzed epoxy primer, painted with two coats of catalyzed polyurethane topcoat or an equivalent high performance tnemec epoxy paint system.
5. Spray Nozzles, Caps and Heads: Shall be manufactured from corrosion resistant solid Ultra-High Molecular Weight Polyethylene (UHMW) plastic, rigid UV treated polyurethane, Lead Free Brass or 304/304L Stainless Steel. Exposed hardware shall be tamper resistant. PVC, Nylon, and Delrin™ material shall not be utilized.
6. Rotational Joints: This joint shall provide smooth operation, be free of any pinch points and contain no flexible hoses.
7. Hoses: Flexible hose shall be constructed of high-grade PVC compound for flexibility with internal braided reinforcement. It shall be installed using stainless steel hose fittings and two (2) protective covers without sharp edges and pinch points. Hose shall be installed to prevent entanglement.
8. Interactive Valves: All Butterfly valves shall be stainless steel with EPDM seat. Valve handles shall be non-climbable and located to prevent impact. All ball valves shall be PVC. All rope pull operated valves shall be self-closing with stainless steel or brass bodies and/or operating parts. Valves and piping shall be capable of withstanding a 79 kg (175 lb.) live load.
9. Water guns/cannons: The water gun/cannon shall be mounted on a base that will allow the gun to be directed by the user. Water guns/Cannons shall have pivot controls, capable of limiting rotational range.

C. Manifolds:

1. Mounting and Connections: Provide a water distribution manifold consisting of a main pipe divided in multiple water outputs and valves to permit water flow adjustment for each output line. Manifold shall include all valves and winterization connections for a complete and operational system.
2. Location: The Water Distribution Manifold shall be located as shown on the drawings

2.3 FLUSH MOUNTED POOL PLAY EQUIPMENT

- A. Flush mounted pool play equipment shall be as shown on the contract documents.
- B. Materials of Construction for Flush Mounted Equipment shall be:
 - 1. Safety: Installed flush with adjacent surfaces, except where noted on contract documents. Pool play features are to meet or exceed current ASTM playground safety standards, ADA Standard for handicap accessibility and be designed and manufactured to prevent finger and toe entrapment.
 - 2. Nozzles: Provided with temper resistant brass, stainless-steel or equivalent material spray cap and winterizing cap.
 - 3. Maintenance: All outdoor pool play features of flush mount design shall address winterization.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Product Installation
 - 1. When applicable, templates shall be supplied to facilitate the installation of embedded anchoring equipment.
 - 2. All posts shall have electrical grounding studs incorporated into their associated anchoring equipment. All play products shall be grounded by the installer per local codes.
 - 3. Drawings and Instructions: Product drawings and installation manuals shall be supplied by the manufacturer for ease of installation.
- B. Concrete Pedestal Finishes:
 - 1. Contractor shall install pool finish materials on all submerged and freeboard level concrete pedestals. Match pool wall finishes detailed in the Pool Drawings and Finish Schedule.
- C. Manufacturer's Installation Instructions
 - 1. All equipment of this section shall be installed in accordance with industry standards and comply with manufacturer's installation instructions/recommendation. The contractor shall notify the engineer in writing of any discrepancies between the contract documents and the manufacturer's instruction. This notification shall include a request for clarification prior to installation.
- D. Install equipment true and level, with flush fitment to surfacing material.
- E. Protect Equipment from damage during installation and up to substantial completion. Repair or replace damaged parts.

F. Touch up:

1. Touch up finish paint (if applicable) and touch up paint for cold galvanizing shall be provided by the manufacturer.
2. All repairs to galvanized surfaces shall be carried out in accordance with ASTM A780, Standard Practice for Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings.

G. Start up:

1. Follow manufacturer's instructions for start-up.
2. Prior to start-up Contractor shall confirm all piping is free of debris that can clog nozzles.
3. Contractor shall adjust the overall flow and/or distribution to the pool play equipment for balanced aesthetic and safe play.
4. Contractor shall verify proper operation of all interactive components.
5. Upon completion of construction, the contractor shall provide the owner /operator adequate training on the pool play equipment uses, operations and maintenance.

END OF SECTION 131147

SECTION 131162 - SPRAY PAD FLOOR FINISH – ALTERNATE BID**PART 1 - GENERAL****1.1 SECTION INCLUDES**

- A. Includes but is not limited to the complete installation of the spray pad soft floor finish material. Design shall be a 3 color scheme of greens and blues with a “lily pad on water theme.” Design and color selection shall be made by architect/owner.
- B. Basis of design is Life Floor – Installation by Inside Edge Commercial Services, LLC or Life Floor Mfg.

1.2 RELATED DOCUMENTS

- A. Drawings and Contracting Requirements, including General and Supplementary Conditions and Division 01 - General Requirements, apply to this Section.
- B. Division 13 11 Pool Specifications apply to this section.
- C. Division 13 11 18 Pool Concrete

1.3 REFERENCES

- A. The following latest edition of reference specifications, guides and standards shall become part of the Specification as if herein written. If provisions conflict, the more stringent provisions shall apply.
 - 1. ANSI – American National Standards Institute
 - 2. NSF – National Sanitation Foundation Standard 50
 - 3. MAHC – Model Aquatic Health Code
 - 4. ASTM – G154 – UV Resistance

1.4 QUALITY ASSURANCE

- A. The individual that is installing the Life Floor Product shall provide documentation of a minimum of five (5) successful installations of similar scope and complexity with current contact information and phone number.
- B. The installer shall be an employee of Inside Edge or Life Floor with more than 2 years of experience installing Life Floor on an Outdoor Spray Pad application.

1.5 SUBMITTALS

- A. Refer to General Requirements and Division 01.
- B. Submit product literature and sample colors for Life Floor Material Product data including manufacturer's specifications, installation instructions.
- C. Submit Shop Drawings clearly indicating the lily pad design intent for the spray pad and the color options.

1.6 SUBSTITUTIONS

- A. Refer to General Requirements and Division 01
- B. Substitutions must meet all requirements noted in the specification and must receive Owner Approval prior to bidding.

1.7 DELIVERY, STORAGE AND HANDLING

- A. If material is stored, it must be stored in a cool, dry area, protected from the elements.

1.8 WARRANTIES

- A. The surface is required to be cleaned with products approved or provided by Life Floor Manufacturer
- B. Provide Manufacturer's Product Warranty on the Life Floor Product. The Life Floor manufacturer shall acknowledge that the Spray Pad Surface shall guarantee that Life Floor Material for five (5) years from date of delivery.
- C. Provide install by "Preferred installer" Warranty on the Life Floor Install. The "Preferred Installer" shall be Inside Edge Commercial Interior Services, LLC or Life Floor Manufacturer. The surface installer shall acknowledge that the spray pad surface conforms with manufacturer requirements prior to installation.
- D. Life Floor and Inside Edge are "Preferred Installers" and shall provide full written warranty, including limitations to warranty and directions for making a warranty claim.

PART 2 - PRODUCTS

2.1 ACCEPTABLE PRODUCTS AND MANUFACTURERS

- A. Installation shall be Life Floor 3/8" thick floor tiles. Specific colors and design patterns must be provided to the Architect based on Life Floor basic 3 color pattern options.

- B. Basis of design is Life Floor – Installed by Inside Edge Commercial Services LLC or Life Floor Mfg.
- C. Engineer Approved Equal.

2.2 MATERIALS

- A. Must be NSF/ANSI 50 Certified
- B. Density Thickness shall be 3/8"
- C. Design Pattern - Specific colors and design patterns must be provided to the Architect based on design submittals.
- D. Slip Resistance
- E. Material must be independently tested via the British Pendulum Method (BPN) and must achieve a minimum 40 BPN
- F. Impact Absorption
- G. Material must have a Head Injury Criterion (HIC) value of 750 or below. With a .20 Meter fall height.
- H. Cleanability
 - 1. Material must be certified to a 99.9% reduction of organisms after being sanitized using the "dirty slurry" testing for two major bacterial groups found in aquatic environments.

2.3 INSPECTION/MEETINGS AND PREPARATION

- A. Schedule a Life Floor pre-installation conference before applying the floor finish
 - 1. Attendees: Manufacture's representative, Spray Pad Finish Installer, Contractor and its superintendent, Architect and other concerned parties shall attend the conference. All participants at the conference shall be familiar with the project and authorized to conclude matters relating to the work.
 - 2. Agenda: Review the manufacturer's application instructions and discuss items of significance that could affect the progress and installation, including but not limited to the following:
 - a. Construction/Installation Schedule
 - b. Critical Work Sequencing
 - c. Accessibility
 - d. Designation of responsible personnel qualified to perform the work.
 - e. Concrete surface preparation
 - f. Application of adhesive materials and time sensitive issues related to application.
 - g. Life Floor application and surface preparation.

- h. Discuss requirements for post-installation to protect surface from damage prior to facility hand off to owner.
 - i. Verify and discuss proposed work force is adequate to complete the installation as recommended by the manufacturer and on schedule.
- 3. Record significant discussions and agreements and/or disagreements of the conference, and the approved schedule. Promptly publish and distribute meeting minutes highlighting all issues or discrepancies to the Architect/Engineer prior to installing the Life Floor product.

PART 3 - EXECUTION

3.1 PREPARATION

- A. All Life Floor installation must strictly follow manufacture installation guidelines, references and recommendations.
- B. Environmental conditions must comply with manufacturer's requirements
- C. The Life Floor installer shall coordinate with the spray pad concrete contractor, specific concrete finish requirements for the pool finish application.
- D. Concrete surface shall be left ¼' below all adjoining hard surface/objects that the Life Floor material will transition to. This includes but is not limited to ground spray features and covers, drains and surrounding deck. The installation will result in the Life Floor material being left 1/8" higher than the hard surface/object that it interacts with.
- E. It is the "Preferred Installers" responsibility to ensure that the concrete substrate is adequate for proper installation of the Life Floor material in accordance with the manufacturer's requirements.
- F. Prepare all spray pad surfaces to receive the Life Floor materials per the manufacturer's requirements.

3.2 APPLICATION

- A. All Life Floor installation must strictly follow manufacture installation guidelines, references and recommendations.
- B. Apply the Life Floor finish so it is 1/8" high than adjacent ground spray features and covers, drains and surrounding deck etc.
- C. Spray Pad Floor must be installed so it is a minimum 99.6% impervious – sealing all joints to not allow water seepage between floor material joints.

- D. The contractor is responsible of all cleaning (using Life Floor Mfg required cleaner), chemical monitoring and other requirements set forth bey the manufacture installation and curing instructions. This shall not be the responsibility of the owner.
- E. The installing contractor shall guarantee the finish to be free of loose edges that may cause deterioration of the flooring material.
- F. ensure that the concrete substrate is adequate for proper installation of the Life Floor material in accordance with the manufacturer's requirements.
- G. Prepare all spray pad surfaces to receive the Life Floor materials per the manufacturer's requirements.

END OF SECTION 131162

SECTION 221313 - FACILITY SANITARY SEWERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. PVC pipe and fittings.
 - 2. Cleanouts.

1.3 ACTION SUBMITTALS

- A. Product Data: For the following:
 - 1. Pipe and fittings.
 - 2. Backwater valves.
 - 3. Cleanouts.
- B. Shop Drawings: For manholes. Include plans, elevations, sections, details, and frames and covers.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings:
 - 1. Show pipe sizes, locations, and elevations. Show other piping in same trench and clearances from sewer system piping. Indicate interface and spatial relationship between manholes, piping, and proximate structures.
 - 2. Show system piping in profile. Draw profiles to horizontal scale of not less than 1 inch equals 50 feet and to vertical scale of not less than 1 inch equals 5 feet. Indicate manholes and piping. Show types, sizes, materials, and elevations of other utilities crossing system piping.
- B. Product Certificates: For each type of pipe and fitting.
- C. Field quality-control reports.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic manholes, pipe, and fittings in direct sunlight.
- B. Protect pipe, pipe fittings, and seals from dirt and damage.
- C. Handle manholes according to manufacturer's written rigging instructions.

1.6 FIELD CONDITIONS

- A. Interruption of Existing Sanitary Sewerage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service according to requirements indicated:
 - 1. Notify Owner no fewer than two days in advance of proposed interruption of service.
 - 2. Do not proceed with interruption of service without Owner's written permission.

PART 2 - PRODUCTS

2.1 PVC PIPE AND FITTINGS

- A. PVC Water-Service Piping:
 - 1. Pipe: ASTM D1785, Schedule 40 PVC, with plain ends for solvent-cemented joints.
 - 2. Fittings: ASTM D2466, Schedule 40 and ASTM D2467, Schedule 80 PVC, socket type.

2.2 BACKWATER VALVES

- A. PVC Backwater Valves:
 - 1. Description: Horizontal type; with PVC body, PVC removable cover, and PVC swing check valve.

2.3 CLEANOUTS

- A. PVC Cleanouts:
 - 1. Description: PVC body with PVC threaded plug. Include PVC sewer pipe fitting and riser to cleanout of same material as sewer piping.
 - 2. Resilient Pipe Connectors: ASTM C923, cast or fitted into manhole walls, for each pipe connection.

3. Steps: Individual FRP steps or FRP ladder, wide enough to allow worker to place both feet on one step and designed to prevent lateral slippage off step. Cast or anchor steps into sidewalls at 12- to 16-inch intervals. Omit steps if total depth from floor of manhole to finished grade is less than 60 inches.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavating, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details to indicate general location and arrangement of underground sanitary sewer piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings according to manufacturer's written instructions for using lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.
- F. Install gravity-flow, nonpressure, drainage piping according to the following:
 1. Install piping pitched down in direction of flow, at minimum slope of 1 percent unless otherwise indicated.
 2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place-concrete supports or anchors.
 3. Install piping with 36-inch minimum cover.
 4. Install PVC cellular-core sewer piping according to ASTM D2321 and ASTM F1668.
 5. Install PVC corrugated sewer piping according to ASTM D2321 and ASTM F1668.
 6. Install PVC profile sewer piping according to ASTM D2321 and ASTM F1668.
 7. Install PVC Type PSM sewer piping according to ASTM D2321 and ASTM F1668.
 8. Install PVC gravity sewer piping according to ASTM D2321 and ASTM F1668.
 9. Install fiberglass sewer piping according to ASTM D3839 and ASTM F1668.

- G. Clear interior of piping and manholes of dirt and superfluous material as work progresses. Maintain swab or drag in piping, and pull past each joint as it is completed. Place plug in end of incomplete piping at end of day and when work stops.

3.3 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure, drainage piping according to the following:
 - 1. Join PVC cellular-core sewer piping according to ASTM D2321 and ASTM F891 for solvent-cemented joints.
 - 2. Join PVC corrugated sewer piping according to ASTM D2321.
 - 3. Join PVC profile sewer piping according to ASTM D2321 for elastomeric-seal joints or ASTM F794 for gasketed joints.
 - 4. Join PVC Type PSM sewer piping according to ASTM D2321 and ASTM D3034 for elastomeric-seal joints or ASTM D3034 for elastomeric-gasket joints.
 - 5. Join PVC gravity sewer piping according to ASTM D2321 and ASTM D3034 for elastomeric-seal joints or ASTM D3034 for elastomeric-gasket joints.
- B. Pipe couplings, expansion joints, and deflection fittings with pressure ratings at least equal to piping rating may be used in applications below unless otherwise indicated.
 - 1. Use nonpressure flexible couplings where required to join gravity-flow, nonpressure sewer piping unless otherwise indicated.
 - a. Unshielded Shielded flexible or rigid couplings for pipes of same or slightly different OD.
 - b. Unshielded, increaser/reducer-pattern, flexible or rigid couplings for pipes with different OD.
 - c. Ring-type flexible couplings for piping of different sizes where annular space between smaller piping's OD and larger piping's ID permits installation.

3.4 BACKWATER VALVE INSTALLATION

- A. Install horizontal-type backwater valves in piping manholes or pits.
- B. Install combination horizontal and manual gate-type valves in piping and in manholes.
- C. Install terminal-type backwater valves on end of piping and in manholes. Secure units to sidewalls.

3.5 CLEANOUT INSTALLATION

- A. Install cleanouts and riser extensions from sewer pipes to cleanouts at grade. Use cast-iron soil pipe fittings in sewer pipes at branches for cleanouts, and use cast-iron soil pipe for riser extensions to cleanouts. Install piping so cleanouts open in direction of flow in sewer pipe.

1. Use Light-Duty, top-loading classification cleanouts in earth or unpaved foot-traffic areas.
 2. Use Medium-Duty, top-loading classification cleanouts in paved foot-traffic areas.
- B. Set cleanout frames and covers in earth in cast-in-place-concrete block, 18 by 18 by 12 inches deep. Set with tops 1 inch above surrounding grade.
- C. Set cleanout frames and covers in concrete pavement and roads with tops flush with pavement surface.

3.6 CONNECTIONS

- A. Make connections to existing piping and underground manholes.
1. Use commercially manufactured wye fittings for piping branch connections. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye fitting plus 6-inch overlap with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
 2. Make branch connections from side into existing piping, NPS 4 to NPS 20. Remove section of existing pipe, install wye fitting into existing piping, and encase entire wye with not less than 6 inches of concrete with 28-day compressive strength of 3000 psi.
 3. Make branch connections from side into existing piping, NPS 21 or larger, or to underground manholes by cutting opening into existing unit large enough to allow 3 inches of concrete to be packed around entering connection. Cut end of connection pipe passing through pipe or structure wall to conform to shape of, and be flush with, inside wall unless otherwise indicated. On outside of pipe or manhole wall, encase entering connection in 6 inches of concrete for minimum length of 12 inches to provide additional support of collar from connection to undisturbed ground.
 - a. Use concrete that will attain a minimum 28-day compressive strength of 3000 psi unless otherwise indicated.
 - b. Use epoxy-bonding compound as interface between new and existing concrete and piping materials.
 4. Protect existing piping and manholes to prevent concrete or debris from entering while making tap connections. Remove debris or other extraneous material that may accumulate.
- B. Connect to grease oil and sand interceptors specified in Section 221323 "Sanitary Waste Interceptors."

3.7 IDENTIFICATION

- A. Comply with requirements in Section 312000 "Earth Moving" for underground utility identification devices. Arrange for installation of green warning tapes directly over piping and at outside edges of underground manholes.
 - 1. Use warning tape or detectable warning tape over ferrous piping.
 - 2. Use detectable warning tape over nonferrous piping and over edges of underground manholes.

3.8 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate report for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.
 - c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
 - 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
 - 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
 - 1. Do not enclose, cover, or put into service before inspection and approval.
 - 2. Test completed piping systems according to requirements of authorities having jurisdiction.
 - 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 - 4. Submit separate report for each test.
 - 5. Hydrostatic Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction and the following:
 - a. Fill sewer piping with water. Test with pressure of at least 10-foot head of water, and maintain such pressure without leakage for at least 15 minutes.
 - b. Close openings in system and fill with water.

- c. Purge air and refill with water.
 - d. Disconnect water supply.
 - e. Test and inspect joints for leaks.
- 6. Air Tests: Test sanitary sewerage according to requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - a. Test plastic gravity sewer piping according to ASTM F1417.
 - b. Test concrete gravity sewer piping according to ASTM C1628.
- 7. Force Main: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than 150 psig.
 - a. Ductile-Iron Piping: Test according to AWWA C600, "Hydraulic Testing" Section.
 - b. PVC Piping: Test according to AWWA M23, "Testing and Maintenance" Chapter.
- 8. Manholes: Perform hydraulic test according to ASTM C969.
- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.9 CLEANING

- A. Clean dirt and superfluous material from interior of piping. Flush with potable water.

END OF SECTION 221313

SECTION 221423 - STORM DRAINAGE PIPING SPECIALTIES

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Miscellaneous storm drainage piping specialties.

1.2 ACTION SUBMITTALS

- A. Product Data:
 - 1. Miscellaneous storm drainage piping specialties.

1.3 QUALITY ASSURANCE

- A. Provide drainage piping specialties are to bear label, stamp, or other markings of specified testing agency.

PART 2 - PRODUCTS

2.1 MISCELLANEOUS STORM DRAINAGE PIPING SPECIALTIES

- A. Downspout Adapters:
 - 1. Description: Manufactured, gray-iron casting, for attaching to horizontal-outlet, parapet roof drain and to exterior sheet metal downspout.
 - 2. Size: Inlet size to match parapet drain outlet.
- B. Downspout Boots:
 - 1. Description: Manufactured, ASTM A48/A48M, gray-iron casting, with strap or ears for attaching to building; NPS 4 outlet; and shop-applied bituminous coating.
 - 2. Size: Inlet size to match downspout and NPS 4 outlet.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install roof drains in accordance with roof membrane manufacturer's written installation instructions at low points of roof areas.
 - 1. Install flashing collar or flange of roof drain to maintain integrity of waterproof membranes where penetrated.
 - 2. Install expansion joints, if indicated, in roof drain outlets.
 - 3. Position roof drains for easy access and maintenance.
- B. Install downspout adapters on outlet of back-outlet parapet roof drains and connect to sheet metal downspouts.
- C. Install downspout boots at grade with top 6 inches above grade. Secure to building wall.
- D. For floor cleanouts for piping below floors, install cleanout deck plates with top flush with finished floor.
- E. Install horizontal backwater valves in floor with cover flush with floor.

3.2 CLEANING

- A. Clean piping specialties during installation and remove dirt and debris as work progresses.

3.3 PROTECTION

- A. Protect piping specialties during remainder of construction period to avoid clogging with dirt or debris and to prevent damage from traffic and construction work.
- B. Place plugs in ends of uncompleted piping at end of each day and when work stops.

END OF SECTION 221423

SECTION 311000 - SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Protecting existing vegetation to remain.
 - 2. Removing existing vegetation.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Stripping and stockpiling rock.
 - 6. Removing above- and below-grade site improvements.
 - 7. Temporary erosion and sedimentation control.

- B. Related Requirements:

- 1. Section 015000 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

- C. Related Requirements:

- 1. Section 01500 "Temporary Facilities and Controls" for temporary erosion- and sedimentation-control measures.

1.3 DEFINITIONS

- A. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil," but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow.

- D. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil; the zone where plant roots grow. Its appearance is generally friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects larger than 2 inches in diameter; and free of weeds, roots, toxic materials, or other nonsoil materials.
- E. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction and indicated on Drawings.
- F. Tree-Protection Zone: Area surrounding individual trees or groups of trees to be protected during construction and indicated on Drawings.
- G. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site.

1.5 MATERIAL OWNERSHIP

- A. Except for materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.6 INFORMATIONAL SUBMITTALS

- A. Existing Conditions: Documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
 - 1. Use sufficiently detailed photographs or video recordings.
 - 2. Include plans and notations to indicate specific wounds and damage conditions of each tree or other plant designated to remain.
- B. Topsoil stripping and stockpiling program.
- C. Rock stockpiling program.
- D. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.7 QUALITY ASSURANCE

- A. Topsoil Stripping and Stockpiling Program: Prepare a written program to systematically demonstrate the ability of personnel to properly follow procedures and handle materials and equipment during the Work. Include dimensioned diagrams for placement and protection of stockpiles.

1.8 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed trafficways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Utility Locator Service: Notify Call Before You Dig for area where Project is located before site clearing.
- D. Do not commence site clearing operations until temporary erosion- and sedimentation-control and plant-protection measures are in place.
- E. Tree- and Plant-Protection Zones: Protect according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- F. Soil Stripping, Handling, and Stockpiling: Perform only when the soil is dry or slightly moist.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Satisfactory Soil Material: Requirements for satisfactory soil material are specified in Section 312000 "Earth Moving."
 - 1. Obtain approved borrow soil material off-site when satisfactory soil material is not available on-site.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect and maintain benchmarks and survey control points from disturbance during construction.
- B. Verify that trees, shrubs, and other vegetation to remain or to be relocated have been flagged and that protection zones have been identified and enclosed according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Provide temporary erosion- and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to erosion- and sedimentation-control Drawings and requirements of authorities having jurisdiction.
- B. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- C. Inspect, maintain, and repair erosion- and sedimentation-control measures during construction until permanent vegetation has been established.
- D. Remove erosion and sedimentation controls, and restore and stabilize areas disturbed during removal.

3.3 TREE AND PLANT PROTECTION

- A. Protect trees and plants remaining on-site according to requirements in Section 015639 "Temporary Tree and Plant Protection."
- B. Repair or replace trees, shrubs, and other vegetation indicated to remain or be relocated that are damaged by construction operations according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.4 EXISTING UTILITIES

1. Owner will arrange to shut off indicated utilities when requested by Contractor.
- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others, unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 2. Do not proceed with utility interruptions without Architect's written permission.
- C. Excavate for and remove underground utilities indicated to be removed.

3.5 CLEARING AND GRUBBING

- A. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 2. Grind down stumps and remove roots larger than 3 inches in diameter, obstructions, and debris to a depth of 18 inches below exposed subgrade.
 3. Use only hand methods or air spade for grubbing within protection zones.
 4. Chip removed tree branches and stockpile in areas approved by Architect. dispose of off-site.
- B. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 1. Place fill material in horizontal layers not exceeding a loose depth of 6 inches, and compact each layer to a density equal to adjacent original ground.

3.6 TOPSOIL STRIPPING

- A. Remove sod and grass before stripping topsoil.
- B. Strip topsoil to depth 6 inches in a manner to prevent intermingling with underlying subsoil or other waste materials.
 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.

- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil or other materials. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Do not stockpile topsoil within protection zones.
 - 3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

3.7 STOCKPILING ROCK

- A. Remove from construction area naturally formed rocks that measure more than 1 foot across in least dimension. Do not include excavated or crushed rock.
 - 1. Separate or wash off non-rock materials from rocks, including soil, clay lumps, gravel, and other objects larger than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- B. Stockpile rock away from edge of excavations without intermixing with other materials. Cover to prevent windblown debris from accumulating among rocks.
 - 1. Limit height of rock stockpiles to 36 inches
 - 2. Do not stockpile rock within protection zones.
 - 3. Dispose of surplus rock. Surplus rock is that which exceeds quantity indicated to be stockpiled or reused.

3.8 SITE IMPROVEMENTS

- A. Remove existing above- and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove paving and aggregate base as indicated.
 - 1. Unless existing full-depth joints coincide with line of demolition, neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 - 2. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.9 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.

- B. Burning tree, shrub, and other vegetation waste is permitted according to burning requirements and permitting of authorities having jurisdiction. Control such burning to produce the least smoke or air pollutants and minimum annoyance to surrounding properties. Burning of other waste and debris is prohibited.
- C. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials, and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION 311000

SECTION 312000 - EARTH MOVING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Excavating and filling for rough grading the Site.
2. Preparing subgrades for walks, pavements, turf and grasses, and plants.
3. Excavating and backfilling for buildings and structures.
4. Subbase course for concrete walks, pavements.
5. Subsurface drainage backfill for walls and trenches.
6. Excavating and backfilling trenches for utilities and pits for buried utility structures.

B. Related Requirements:

1. Section 013200 "Construction Progress Documentation" and Section 013233 "Photographic Documentation" for recording pre-excavation and earth-moving progress.
2. Section 311000 "Site Clearing" for site stripping, grubbing, stripping and stockpiling topsoil, and removal of above- and below-grade improvements and utilities.
3. Section 315000 "Excavation Support and Protection" for shoring, bracing, and sheet piling of excavations.
4. Section 329200 "Turf and Grasses" for finish grading in turf and grass areas, including preparing and placing planting soil for turf areas.
5. Section 329300 "Plants" for finish grading in planting areas and tree and shrub pit excavation and planting.

1.2 UNIT PRICES

- A. Work of this Section is affected by unit prices for earth moving specified in Section 012200 "Unit Prices."
- B. Quantity allowances for earth moving are included in Section 012100 "Allowances."
- C. Rock Measurement: Volume of rock actually removed, measured in original position, but not to exceed the following. Unit prices for rock excavation include replacement with approved materials.
 1. 24 inches outside of concrete forms other than at footings.
 2. 12 inches outside of concrete forms at footings.
 3. 6 inches outside of minimum required dimensions of concrete cast against grade.
 4. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
 5. 6 inches beneath bottom of concrete slabs-on-grade.

6. 6 inches beneath pipe in trenches, and the greater of 24 inches wider than pipe or 42 inches wide.

1.3 DEFINITIONS

- A. Backfill: Soil material or controlled low-strength material used to fill an excavation.
 1. Initial Backfill: Backfill placed beside and over pipe in a trench, including haunches to support sides of pipe.
 2. Final Backfill: Backfill placed over initial backfill to fill a trench.
- B. Base Course: Aggregate layer placed between the subbase course and hot-mix asphalt paving.
- C. Bedding Course: Aggregate layer placed over the excavated subgrade in a trench before laying pipe.
- D. Borrow Soil: Satisfactory soil imported from off-site for use as fill or backfill.
- E. Drainage Course: Aggregate layer supporting the slab-on-grade that also minimizes upward capillary flow of pore water.
- F. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
 1. Authorized Additional Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions as directed by Architect. Authorized additional excavation and replacement material will be paid for according to Contract provisions for unit prices changes in the Work.
 2. Bulk Excavation: Excavation more than 10 feet in width and more than 30 feet in length.
 3. Unauthorized Excavation: Excavation below subgrade elevations or beyond indicated lines and dimensions without direction by Architect. Unauthorized excavation, as well as remedial work directed by Architect, will be without additional compensation.
- G. Fill: Soil materials used to raise existing grades.
- H. Rock:
 1. Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material that exceed 1 cu. yd. for bulk excavation or 3/4 cu. yd. for footing, trench, and pit excavation that cannot be removed by rock-excavating equipment equivalent to the following in size and performance ratings, without systematic drilling, ram hammering, ripping, or blasting, when permitted:
 - a. Equipment for Bulk Excavation: Late-model, track-mounted loader; rated at not less than 230-hp flywheel power and developing a minimum of 47,992-lbf breakout force with a general-purpose bare bucket.

2. Rock material in beds, ledges, unstratified masses, conglomerate deposits, and boulders of rock material 3/4 cu. yd. or more in volume that exceed a standard penetration resistance of [100 blows/2 inches when tested by a geotechnical testing agency, according to ASTM D1586.
- I. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other fabricated stationary features constructed above or below the ground surface.
- J. Subbase Course: Aggregate layer placed between the subgrade and base course for hot-mix asphalt pavement, or aggregate layer placed between the subgrade and a cement concrete pavement or a cement concrete or hot-mix asphalt walk.
- K. Subgrade: Uppermost surface of an excavation or the top surface of a fill or backfill immediately below subbase, drainage fill, drainage course, or topsoil materials.
- L. Utilities: On-site underground pipes, conduits, ducts, and cables as well as underground services within buildings.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct preexcavation conference at Project site
 1. Review methods and procedures related to earthmoving, including, but not limited to, the following:
 - a. Personnel and equipment needed to make progress and avoid delays.
 - b. Coordination of Work with utility locator service.
 - c. Coordination of Work and equipment movement with the locations of tree- and plant-protection zones.
 - d. Extent of trenching by hand or with air spade.
 - e. Field quality control.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of the following manufactured products required:
 1. Geotextiles.
 2. Controlled low-strength material, including design mixture.
 3. Geofoam
 4. Warning tapes.

B. Samples for Verification: For the following products, in sizes indicated below:

1. Geotextile: 12 by 12 inches.
2. Warning Tape: 12 inches long; of each color.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Material Test Reports: For each on-site and borrow soil material proposed for fill and backfill as follows:
1. Classification according to ASTM D2487.
 2. Laboratory compaction curve according to ASTM D698.

1.7 QUALITY ASSURANCE

- A. Geotechnical Testing Agency Qualifications: Qualified according to ASTM E329 and ASTM D3740 for testing indicated.

1.8 FIELD CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth-moving operations.
1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing earth moving indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
1. Do not proceed with work on adjoining property until directed by Architect.
- C. Utility Locator Service: Notify "Call Before You Dig" for area where Project is located before beginning earth-moving operations.
- D. Do not commence earth-moving operations until temporary site fencing and erosion- and sedimentation-control measures specified in Section 015000 "Temporary Facilities and Controls" and Section 311000 "Site Clearing" are in place.
- E. Do not commence earth-moving operations until plant-protection measures specified in Section 015639 "Temporary Tree and Plant Protection" are in place.

- F. The following practices are prohibited within protection zones:
1. Storage of construction materials, debris, or excavated material.
 2. Parking vehicles or equipment.
 3. Foot traffic.
 4. Erection of sheds or structures.
 5. Impoundment of water.
 6. Excavation or other digging unless otherwise indicated.
 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- G. Do not direct vehicle or equipment exhaust towards protection zones.
- H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrow soil materials when sufficient satisfactory soil materials are not available from excavations.
- B. Satisfactory Soils: Soil Classification Groups GW, GP, GM, SW, SP, and SM according to ASTM D2487, Groups A-1, A-2-4, A-2-5, and A-3 according to AASHTO M 145, or a combination of these groups; free of rock or gravel larger than 3 inches in any dimension, debris, waste, frozen materials, vegetation, and other deleterious matter.
- C. Unsatisfactory Soils: Soil Classification Groups GC, SC, CL, ML, OL, CH, MH, OH, and PT according to ASTM D2487 Groups A-2-6, A-2-7, A-4, A-5, A-6, and A-7 according to AASHTO M 145, or a combination of these groups.
1. Unsatisfactory soils also include satisfactory soils not maintained within 2 percent of optimum moisture content at time of compaction.
- D. Subbase Material: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.
- E. Base Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 95 percent passing a 1-1/2-inch sieve and not more than 8 percent passing a No. 200 sieve.
- F. Engineered Fill: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; with at least 90 percent passing a 1-1/2-inch sieve and not more than 12 percent passing a No. 200 sieve.

- G. Bedding Course: Naturally or artificially graded mixture of natural or crushed gravel, crushed stone, and natural or crushed sand; ASTM D2940/D2940M; except with 100 percent passing a 1-inch sieve and not more than 8 percent passing a No. 200) sieve.
- H. Drainage Course: Narrowly graded mixture of washed crushed stone, or crushed or uncrushed gravel; ASTM D448; coarse-aggregate grading Size 57; with 100 percent passing a 1-1/2-inch sieve and zero to 5 percent passing a No. 8 sieve.
- I. Filter Material: Narrowly graded mixture of natural or crushed gravel, or crushed stone and natural sand; ASTM D448; coarse-aggregate grading Size 67; with 100 percent passing a 1-inch sieve and zero to 5 percent passing a No. 4 sieve.
- J. Sand: ASTM C33/C33M; fine aggregate.
- K. Impervious Fill: Clayey gravel and sand mixture capable of compacting to a dense state.

2.2 ACCESSORIES

- A. Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, 6 inches wide and 4 mils thick, continuously inscribed with a description of the utility; colored as follows:
 - 1. Red: Electric.
 - 2. Yellow: Gas, oil, steam, and dangerous materials.
 - 3. Orange: Telephone and other communications.
 - 4. Blue: Water systems.
 - 5. Green: Sewer systems.
- B. Detectable Warning Tape: Acid- and alkali-resistant, polyethylene film warning tape manufactured for marking and identifying underground utilities, a minimum of 6 inches (150 mm) wide and 4 mils (0.1 mm) thick, continuously inscribed with a description of the utility, with metallic core encased in a protective jacket for corrosion protection, detectable by metal detector when tape is buried up to 30 inches (750 mm) deep; colored as follows:
 - 1. Red: Electric.
 - 2. Yellow: Gas, oil, steam, and dangerous materials.
 - 3. Orange: Telephone and other communications.
 - 4. Blue: Water systems.
 - 5. Green: Sewer systems.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth-moving operations.
- B. Protect and maintain erosion and sedimentation controls during earth-moving operations.
- C. Protect subgrades and foundation soils from freezing temperatures and frost. Remove temporary protection before placing subsequent materials.

3.2 DEWATERING

- A. Provide dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of ground water and permit excavation and construction to proceed on dry, stable subgrades.
- B. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- C. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.
- D. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.

3.3 EXPLOSIVES

- A. Explosives:
 - 1. Do not use explosives.

3.4 EXCAVATION, GENERAL

- A. Unclassified Excavation: Excavate to subgrade elevations regardless of the character of surface and subsurface conditions encountered. Unclassified excavated materials may include rock, soil materials, and obstructions. No changes in the Contract Sum or the Contract Time will be authorized for rock excavation or removal of obstructions.

1. If excavated materials intended for fill and backfill include unsatisfactory soil materials and rock, replace with satisfactory soil materials.
 2. Remove rock to lines and grades indicated to permit installation of permanent construction without exceeding the following dimensions:
 - a. 24 inches outside of concrete forms other than at footings.
 - b. 12 inches outside of concrete forms at footings.
 - c. 6 inches outside of minimum required dimensions of concrete cast against grade.
 - d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
 - e. 6 inches beneath bottom of concrete slabs-on-grade.
 - f. 6 inches beneath pipe in trenches and the greater of 24 inches wider than pipe or 42 inches wide.
- B. Classified Excavation: Excavate to subgrade elevations. Material to be excavated will be classified as earth and rock. Do not excavate rock until it has been classified and cross sectioned by Architect. The Contract Sum will be adjusted for rock excavation according to unit prices included in the Contract Documents. Changes in the Contract Time may be authorized for rock excavation.
1. Earth excavation includes excavating pavements and obstructions visible on surface; underground structures, utilities, and other items indicated to be removed; and soil, boulders, and other materials not classified as rock or unauthorized excavation.
 2. Rock excavation includes removal and disposal of rock. Remove rock to lines and subgrade elevations indicated to permit installation of permanent construction without exceeding the following dimensions:
 - a. 24 inches outside of concrete forms other than at footings.
 - b. 12 inches outside of concrete forms at footings.
 - c. 6 inches outside of minimum required dimensions of concrete cast against grade.
 - d. Outside dimensions of concrete walls indicated to be cast against rock without forms or exterior waterproofing treatments.
 - e. 6 inches beneath bottom of concrete slabs-on-grade.
 - f. 6 inches beneath pipe in trenches and the greater of 24 inches wider than pipe or 42 inches wide.

3.5 EXCAVATION FOR STRUCTURES

- A. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.

B. Excavations at Edges of Tree- and Plant-Protection Zones:

1. Excavate by hand or with an air spade to indicated lines, cross sections, elevations, and subgrades. If excavating by hand, use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.6 EXCAVATION FOR WALKS AND PAVEMENTS

- A. Excavate surfaces under walks and pavements to indicated lines, cross sections, elevations, and subgrades.

3.7 EXCAVATION FOR UTILITY TRENCHES

- A. Excavate trenches to indicated gradients, lines, depths, and elevations.

1. Beyond building perimeter, excavate trenches to allow installation of top of pipe below frost line.

- B. Excavate trenches to uniform widths to provide the following clearance on each side of pipe or conduit. Excavate trench walls vertically from trench bottom to 12 inches higher than top of pipe or conduit unless otherwise indicated.

1. Clearance: 12 inches each side of pipe or conduit As indicated.

- C. Trench Bottoms:

1. Excavate and shape trench bottoms to provide uniform bearing and support of pipes and conduit. Shape subgrade to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits. Remove projecting stones and sharp objects along trench subgrade.

- a. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

2. Excavate trenches 4 inches deeper than bottom of pipe and conduit elevations to allow for bedding course. Hand-excavate deeper for bells of pipe.

- a. Excavate trenches 6 inches deeper than elevation required in rock or other unyielding bearing material to allow for bedding course.

D. Trenches in Tree- and Plant-Protection Zones:

1. Hand-excavate to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
2. Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities.
3. Cut and protect roots according to requirements in Section 015639 "Temporary Tree and Plant Protection."

3.8 SUBGRADE INSPECTION

- A. Notify Architect when excavations have reached required subgrade.
- B. If Architect determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- C. Proof-roll subgrade below the pavements with a pneumatic-tired and loaded 10-wheel, tandem-axle dump truck weighing not less than 15 tons to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.
- D. Authorized additional excavation and replacement material will be paid for according to Contract provisions for changes in the Work.
- E. Reconstruct subgrades damaged by freezing temperatures, frost, rain, accumulated water, or construction activities, as directed by Architect, without additional compensation.

3.9 UNAUTHORIZED EXCAVATION

- A. Fill unauthorized excavation under foundations or wall footings by extending bottom elevation of concrete foundation or footing to excavation bottom, without altering top elevation. Lean concrete fill, with 28-day compressive strength of 2500 psi, may be used when approved by Architect.
 1. Fill unauthorized excavations under other construction, pipe, or conduit as directed by Architect.

3.10 STORAGE OF SOIL MATERIALS

- A. Stockpile borrow soil materials and excavated satisfactory soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 - 1. Stockpile soil materials away from edge of excavations. Do not store within drip line of remaining trees.

3.11 BACKFILL

- A. Place and compact backfill in excavations promptly, but not before completing the following:
 - 1. Construction below finish grade including, where applicable, subdrainage, dampproofing, waterproofing, and perimeter insulation.
 - 2. Surveying locations of underground utilities for Record Documents.
 - 3. Testing and inspecting underground utilities.
 - 4. Removing concrete formwork.
 - 5. Removing trash and debris.
 - 6. Removing temporary shoring, bracing, and sheeting.
 - 7. Installing permanent or temporary horizontal bracing on horizontally supported walls.
- B. Place backfill on subgrades free of mud, frost, snow, or ice.

3.12 UTILITY TRENCH BACKFILL

- A. Place backfill on subgrades free of mud, frost, snow, or ice.
- B. Place and compact bedding course on trench bottoms and where indicated. Shape bedding course to provide continuous support for bells, joints, and barrels of pipes and for joints, fittings, and bodies of conduits.
- C. Trenches under Roadways: Provide 4-inch- thick, concrete-base slab support for piping or conduit less than 30 inches below surface of roadways. After installing and testing, completely encase piping or conduit in a minimum of 4 inches of concrete before backfilling or placing roadway subbase course. Concrete is specified in Section 033000 "Cast-in-Place Concrete."
- D. Backfill voids with satisfactory soil while removing shoring and bracing.

E. Initial Backfill:

1. Soil Backfill: Place and compact initial backfill of subbase material, satisfactory soil], free of particles larger than 1 inch in any dimension, to a height of 12 inches over the pipe or conduit.
 - a. Carefully compact initial backfill under pipe haunches and compact evenly up on both sides and along the full length of piping or conduit to avoid damage or displacement of piping or conduit. Coordinate backfilling with utilities testing.

F. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.

G. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

H. Final Backfill:

1. Soil Backfill: Place and compact final backfill of satisfactory soil to final subgrade elevation.
2. Controlled Low-Strength Material: Place final backfill of controlled low-strength material to final subgrade elevation.

I. Warning Tape: Install warning tape directly above utilities, 12 inches below finished grade, except 6 inches below subgrade under pavements and slabs.

3.13 SOIL FILL

A. Plow, scarify, bench, or break up sloped surfaces steeper than 1 vertical to 4 horizontal so fill material will bond with existing material.

B. Place and compact fill material in layers to required elevations as follows:

1. Under grass and planted areas, use satisfactory soil material.
2. Under walks and pavements, use satisfactory soil material.
3. Under steps and ramps, use engineered fill.
4. Under building slabs, use engineered fill.
5. Under footings and foundations, use engineered fill

C. Place soil fill on subgrades free of mud, frost, snow, or ice.

3.14 SOIL MOISTURE CONTROL

- A. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to within 2 percent of optimum moisture content.
 - 1. Do not place backfill or fill soil material on surfaces that are muddy, frozen, or contain frost or ice.
 - 2. Remove and replace, or scarify and air dry, otherwise satisfactory soil material that exceeds optimum moisture content by 2 percent and is too wet to compact to specified dry unit weight.

3.15 COMPACTION OF SOIL BACKFILLS AND FILLS

- A. Place backfill and fill soil materials in layers not more than 6 inches in loose depth for material compacted by heavy compaction equipment and not more than 4 inches in loose depth for material compacted by hand-operated tampers.
- B. Place backfill and fill soil materials evenly on all sides of structures to required elevations and uniformly along the full length of each structure.
- C. Compact soil materials to not less than the following percentages of maximum dry unit weight according to ASTM D698:
 - 1. Under structures, building slabs, steps, and pavements, scarify and recompact top 12 inches of existing subgrade and each layer of backfill or fill soil material at 95 percent.
 - 2. Under walkways, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 95 percent.
 - 3. Under turf or unpaved areas, scarify and recompact top 6 inches below subgrade and compact each layer of backfill or fill soil material at 85 percent.
 - 4. For utility trenches, compact each layer of initial and final backfill soil material at 85 percent.

3.16 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.

- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to elevations required to achieve indicated finish elevations, within the following subgrade tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1 inch.
 - 3. Pavements: Plus or minus 1/2 inch.
- C. Grading inside Building Lines: Finish subgrade to a tolerance of 1/2 inch when tested with a 10-foot straightedge.

3.17 SUBSURFACE DRAINAGE

- A. Subsurface Drain: Place subsurface drainage geotextile around perimeter of subdrainage trench. Place a 6-inch course of filter material on subsurface drainage geotextile to support subdrainage pipe. Encase subdrainage pipe in a minimum of 12 inches of filter material, placed in compacted layers 6 inches thick, and wrap in subsurface drainage geotextile, overlapping sides and ends at least 6 inches.
- B. Drainage Backfill: Place and compact filter material over subsurface drain, in width indicated, to within 12 inches of final subgrade, in compacted layers 6 inches thick. Overlay drainage backfill with one layer of subsurface drainage geotextile, overlapping sides and ends at least 6 inches.
 - 1. Place and compact impervious fill over drainage backfill in 6-inch- thick compacted layers to final subgrade.

3.18 SUBBASE AND BASE COURSES UNDER PAVEMENTS AND WALKS

- A. Place subbase course and base course on subgrades free of mud, frost, snow, or ice.
- B. On prepared subgrade, place subbase course and base course under pavements and walks as follows:
 - 1. Install separation geotextile on prepared subgrade according to manufacturer's written instructions, overlapping sides and ends.
 - 2. Place base course material over subbase course under hot-mix asphalt pavement.
- C. Pavement Shoulders: Place shoulders along edges of subbase course[and base course] to prevent lateral movement. Construct shoulders, at least 12 inches (300 mm) wide, of satisfactory soil materials and compact simultaneously with each subbase[and base] layer to not less than [95] <Insert number> percent of maximum dry unit weight according to [ASTM D698] [ASTM D1557].

3.19 FIELD QUALITY CONTROL

- A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:
 - 1. Determine prior to placement of fill that site has been prepared in compliance with requirements.
 - 2. Determine that fill material classification and maximum lift thickness comply with requirements.
 - 3. Determine, during placement and compaction, that in-place density of compacted fill complies with requirements.
- B. Testing Agency: Owner will engage a qualified geotechnical engineering testing agency to perform tests and inspections.
- C. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- D. Testing agency will test compaction of soils in place according to ASTM D1556, ASTM D2167, ASTM D2937, and ASTM D6938, as applicable. Tests will be performed at the following locations and frequencies:
 - 1. Paved and Building Slab Areas: At subgrade and at each compacted fill and backfill layer, at least one test for every 2000 sq. ft. or less of paved area or building slab but in no case fewer than three tests.
 - 2. Foundation Wall Backfill: At each compacted backfill layer, at least one test for every 100 feet or less of wall length but no fewer than two tests.
 - 3. Trench Backfill: At each compacted initial and final backfill layer, at least one test for every 150 feet or less of trench length but no fewer than two tests.
- E. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil materials to depth required; recompact and retest until specified compaction is obtained.

3.20 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.
- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.

- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.21 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.

END OF SECTION 312000

SECTION 31 23 17 - TRENCHING

PART 1 GENERAL

1.1 GENERAL NOTES

- A. Prior to beginning Work, Contractor to request a field inspection with the Owner and Engineer for inspection before project start and before project acceptance.
- B. Trenches for underground piping, where necessary shall be excavated to the required depth and bell holes shall be provided where necessary to insure uniform bearing. Trench excavation lines shall provide sufficient clearance for proper execution of underground work.
- C. Trenches shall be open cut from the surface. Irregularities at bottom of trench, or where excavation is below required depth shall be refilled to required grade with compacted soil, or flowable fill at direction of onsite geotechnical engineer.
- D. The Contractor shall be held responsible for the sufficiency of sheeting and bracing and for all damages to property or injury to persons resulting from improper quality, strength, placing and maintenance of trench shoring, sheeting or bracing.
- E. Existing utility lines to be retained that are shown on construction drawings or locations of which are made known to the Contractor prior to excavation operations, shall be protected from damage during excavation and backfilling, and if damaged shall be repaired by Contractor, at own expense.
- F. Existing utility lines found during excavations that were not shown on construction drawings or made known to Contractor prior to excavation shall be protected and remain uninterrupted until approval by Owner or Engineer to proceed.
- G. The Contractor shall be responsible for providing and maintaining a pedestrian and traffic control plan in accordance with Owner standards.
- H. All underground utilities encountered during the projects construction shall be located by a Professional Land Surveyor licensed in North Carolina.

1.2 SUMMARY

A. Section Includes:

- 1. Excavating trenches for utilities.
- 2. Compacted fill from top of utility bedding to subgrade elevations.
- 3. Backfilling and compaction.

1.3 UNIT PRICE - MEASUREMENT AND PAYMENT

A. Trenching:

1. Basis of Measurement: By cubic foot.
2. Basis of Payment: Includes excavating to required elevations, protecting excavation, and stockpiling excavated materials removing excavated materials from site. Over Excavating: Payment is not made for over excavated work nor for replacement materials.

B. Subsoil Fill:

1. Basis of Measurement: By cubic foot.
2. Basis of Payment: Includes furnishing fill material, stockpiling, scarifying substrate surface, placing where required, and compacting.

C. Structural Fill:

1. Basis of Measurement: By cubic foot yard.
2. Basis of Payment: Includes furnishing fill material, stockpiling, shaping substrate surface, placing where required, and compacting.

D. Granular Fill:

1. Basis of Measurement: By cubic foot.
2. Basis of Payment: Includes furnishing fill material, stockpiling, scarifying substrate surface, placing where required, and compacting.

E. Concrete Fill:

1. Basis of Measurement: By cubic foot.
2. Basis of Payment: Includes furnishing materials, forming, mixing and placing where required, and curing.

1.4 REFERENCES

A. American Association of State Highway and Transportation Officials:

1. AASHTO T180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop.

B. ASTM International:

1. ASTM D698 - Standard Test Method for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft³ (600 kN-m/m³)).
2. ASTM D1556 - Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method.

3. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft³ (2,700 kN-m/m³)).
4. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method.
5. ASTM D2922 - Standard Test Method for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth).
6. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth).

1.5 DEFINITIONS

- A. Utility: Any buried pipe, duct, conduit, or cable.

1.6 SUBMITTALS

- A. Excavation Protection Plan: Describe sheeting, shoring, and bracing materials and installation required to protect excavations and adjacent structures and property; include structural calculations to support plan.
- B. Product Data: Submit data for geotextile fabric indicating fabric and construction.
- C. Materials Source: Submit name of imported fill materials suppliers.

1.7 QUALITY ASSURANCE

- A. Perform Work in accordance with Municipality of Huntersville.
- B. Prepare excavation protection plan under direct supervision of professional engineer experienced in design of this Work and licensed in State of North Carolina.
- C. Maintain one copy of each document on site.

1.8 QUALIFICATIONS

- A. Prepare excavation protection plan under direct supervision of Professional Engineer experienced in design of this Work and licensed at Project location. in State of North Carolina.

1.9 FIELD MEASUREMENTS

- A. Verify field measurements prior to fabrication.

1.10 COORDINATION

- A. Verify Work associated with lower elevation utilities is complete before placing higher elevation utilities.

PART 2 PRODUCTS

2.1 FILL MATERIALS

- A. Subsoil Fill: Type as specified in Standard Specifications
- B. Structural Fill: Type as specified in Standard Specifications
- C. Granular Fill: Type as specified in Standard Specifications
- D. Concrete: Lean concrete

2.2 ACCESSORIES

- A. Geotextile Fabric: Non-biodegradable, non-woven. Use NCDOT standard for fabric application and type by use.

PART 3 EXECUTION

3.1 LINES AND GRADES

- A. Lay pipes to lines and grades indicated on Drawings.
 - 1. Owner reserves right to make changes in lines, grades, and depths of utilities when changes are required for Project conditions.
- B. Use laser-beam instrument with qualified operator to establish lines and grades.

3.2 PREPARATION

- A. Call Local Utility Line Information service at 1-800-632-4949 not less than three working days before performing Work.
 - 1. Request underground utilities to be located and marked within and surrounding construction areas.
- B. Identify required lines, levels, contours, and datum locations.

- C. Protect plant life, lawns, rock outcropping and other features remaining as portion of final landscaping.
- D. Protect bench marks, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.
- E. Maintain and protect above and below grade utilities indicated to remain.

3.3 TRENCHING

- A. Excavate subsoil required for utilities.
- B. Remove lumped subsoil, boulders, and rock over 6 inches.
- C. Perform excavation within 24 inches of existing utility service in accordance with utility's requirements
- D. Do not advance open trench more than 200 ahead of installed pipe.
- E. Cut trenches to width indicated on Drawings. sufficiently wide to enable installation and allow inspection. Remove water or materials that interfere with Work.
- F. Excavate bottom of trenches maximum 2 feet wider than outside diameter of pipe.
- G. Excavate trenches to depth indicated on Drawings. Provide uniform and continuous bearing and support for bedding material and utilities.
- H. Do not interfere with 45 degree bearing splay of foundations.
- I. When Project conditions permit, slope side walls of excavation starting 2 feet above top of pipe. When side walls can not be sloped, provide sheeting and shoring to protect excavation as specified in this section.
- J. When subsurface materials at bottom of trench are loose or soft, excavate to greater depth as directed by Engineer until suitable material is encountered. notify Engineer, and request instructions.
- K. Cut out soft areas of subgrade not capable of compaction in place. Backfill with Fill Type and compact to density equal to or greater than requirements for subsequent backfill material.
- L. Trim excavation. Hand trim for bell and spigot pipe joints. Remove loose matter.
- M. Correct areas over excavated areas with compacted backfill as specified for authorized excavation or replace with fill concrete as directed by Engineer.
- N. Remove excess subsoil not intended for reuse, from site.

3.4 SHEETING AND SHORING

- A. Sheet, shore, and brace excavations to prevent danger to persons, structures and adjacent properties and to prevent caving, erosion, and loss of surrounding subsoil.
- B. Support trenches excavated through unstable, loose, or soft material. Provide sheeting, shoring, bracing, or other protection to maintain stability of excavation or at direction of onsite geotechnical engineer.
- C. Design sheeting and shoring to be removed at completion of excavation Work.
- D. Repair damage caused by failure of sheeting, shoring, or bracing and for settlement of filled excavations or adjacent soil.
- E. Repair damage to new and existing Work from settlement, water or earth pressure or other causes resulting from inadequate sheeting, shoring, or bracing.

3.5 BACKFILLING

- A. Backfill trenches to contours and elevations with unfrozen fill materials.
- B. Systematically backfill to allow maximum time for natural settlement. Do not backfill over porous, wet, frozen, or spongy subgrade surfaces.
- C. Place fill material in continuous layers and compact to 95 percent of the material's standard Proctor maximum dry density ASTM D698), except in the top 12 inches where this shall be increased to 98 percent.
- D. Protect open trench to prevent danger to the public

3.6 FIELD QUALITY CONTROL

- A. Perform laboratory material tests in accordance with ASTM D1557.
- B. Perform in place compaction tests in accordance with the following:
 - 1. Density Tests: ASTM D1556.
 - 2. Moisture Tests: ASTM D3017.
- C. When tests indicate Work does not meet specified requirements, remove Work, replace, compact, and retest.
- D. Test as required in Section 31200, "Field Quality Control".

3.7 PROTECTION OF FINISHED WORK

- A. Section 01 70 00 - Execution and Closeout Requirements: Protecting finished work.
- B. Reshape and re-compact fills subjected to vehicular traffic during construction.

END OF SECTION 312317

SECTION 312319 - DEWATERING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Construction dewatering.

B. Related Requirements:

1. Section 013233 "Photographic Documentation" for recording preexisting conditions and dewatering system progress.
2. Section 015723 "Temporary Storm Water Pollution Control" for temporary storm water pollution controls mandated under the EPA's National Pollutant Discharge Elimination System.
3. Section 312000 "Earth Moving" for excavating, backfilling, site grading, and controlling surface-water runoff and ponding.

1.2 ALLOWANCES

- A. See Section 012100 "Allowances" for description of allowances affecting items specified in this Section.

1.3 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1. Verify availability of Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
2. Review condition of site to be dewatered, including coordination with temporary erosion-control measures and temporary controls and protections.
3. Review geotechnical report.
4. Review proposed site clearing and excavations.
5. Review existing utilities and subsurface conditions.
6. Review observation and monitoring of dewatering system.

1.4 ACTION SUBMITTALS

- A. Shop Drawings: For dewatering system, prepared by or under the supervision of a qualified professional engineer.
 - 1. Include plans, elevations, sections, and details.
 - 2. Show arrangement, locations, and details of wells and well points; locations of risers, headers, filters, pumps, power units, and discharge lines; and means of discharge, control of sediment, and disposal of water.
 - 3. Include layouts of piezometers and flow-measuring devices for monitoring performance of dewatering system.
 - 4. Include written plan for dewatering operations, including sequence of well and well-point placement coordinated with excavation shoring and bracings and control procedures to be adopted if dewatering problems arise.
- B. Delegated Design Submittals: For dewatering system, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.5 INFORMATIONAL SUBMITTALS

- A. Field Quality-Control Submittals:
 - 1. Field quality-control reports.
- B. Qualification Statements: For Installer and land surveyor
- C. Delegated design engineer qualifications.
- D. Existing Conditions: Using photographs, show existing conditions of adjacent construction and site improvements that might be misconstrued as damage caused by dewatering operations. Submit before Work begins.
- E. Record Drawings: Identify locations and depths of capped wells and well points and other abandoned-in-place dewatering equipment.

1.6 QUALITY ASSURANCE

- A. Qualifications:
 - 1. Installer: An experienced installer that has specialized in design of dewatering systems and dewatering work.
 - 2. Delegated Design Engineer: A professional engineer who is legally qualified to practice in state where Project is located and who is experienced in providing engineering services of the type indicated.
 - 3. Land Surveyor: A professional land surveyor who is legally qualified to practice in state where Project is located.

1.7 FIELD CONDITIONS

- A. Project-Site Information: A geotechnical report has been prepared for this Project and is available for information only. The opinions expressed in this report are those of a geotechnical engineer and represent interpretations of subsoil conditions, tests, and results of analyses conducted by a geotechnical engineer. Owner is not responsible for interpretations or conclusions drawn from this data.
 - 1. Make additional test borings and conduct other exploratory operations necessary for dewatering in accordance with the performance requirements.
 - 2. The geotechnical report is included elsewhere in Project Manual.
- B. Survey Work: Engage a qualified land surveyor or professional engineer to survey adjacent existing buildings, structures, and site improvements; establish exact elevations at fixed points to act as benchmarks. Clearly identify benchmarks and record existing elevations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design dewatering system.
- B. Dewatering Performance: Design, furnish, install, test, operate, monitor, and maintain dewatering system of sufficient scope, size, and capacity to control hydrostatic pressures and to lower, control, remove, and dispose of groundwater and permit excavation and construction to proceed on dry, stable subgrades.
 - 1. Design dewatering system, including comprehensive engineering analysis by a qualified professional engineer.
 - 2. Continuously monitor and maintain dewatering operations to ensure erosion control, stability of excavations and constructed slopes, prevention of flooding in excavation, and prevention of damage to subgrades and permanent structures.
 - 3. Prevent surface water from entering excavations by grading, dikes, or other means.
 - 4. Accomplish dewatering without damaging existing buildings, structures, and site improvements adjacent to excavation.
 - 5. Remove dewatering system when no longer required for construction.
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning dewatering. Comply with water- and debris-disposal regulations of authorities having jurisdiction.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by dewatering operations.
 - 1. Prevent surface water and subsurface or groundwater from entering excavations, from ponding on prepared subgrades, and from flooding site or surrounding area.
 - 2. Protect subgrades and foundation soils from softening and damage by rain or water accumulation.
- B. Install dewatering system to ensure minimum interference with roads, streets, walks, and other adjacent occupied and used facilities.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by authorities having jurisdiction.
- C. Provide temporary grading to facilitate dewatering and control of surface water.
- D. Protect and maintain temporary erosion and sedimentation controls, which are specified in Section 311000 "Site Clearing," during dewatering operations.

3.2 INSTALLATION

- A. Install dewatering system utilizing wells, well points, or similar methods complete with pump equipment, standby power and pumps, filter material gradation, valves, appurtenances, water disposal, and surface-water controls.
 - 1. Space well points or wells at intervals required to provide sufficient dewatering.
 - 2. Use filters or other means to prevent pumping of fine sands or silts from the subsurface.
- B. Place dewatering system into operation to lower water to specified levels before excavating below groundwater level.
- C. Provide sumps, sedimentation tanks, and other flow-control devices as required by authorities having jurisdiction.
- D. Provide standby equipment on-site, installed and available for immediate operation, to maintain dewatering on continuous basis if any part of system becomes inadequate or fails.

3.3 OPERATION

- A. Operate system continuously until drains, sewers, and structures have been constructed and fill materials have been placed or until dewatering is no longer required.
- B. Operate system to lower and control groundwater to permit excavation, construction of structures, and placement of fill materials on dry subgrades. Drain water-bearing strata above and below bottom of foundations, drains, sewers, and other excavations.
 - 1. Do not permit open-sump pumping that leads to loss of fines, soil piping, subgrade softening, and slope instability.
 - 2. Reduce hydrostatic head in water-bearing strata below subgrade elevations of foundations, drains, sewers, and other excavations.
- C. Dispose of water removed by dewatering in a manner that avoids endangering public health, property, and portions of work under construction or completed. Dispose of water and sediment in a manner that avoids inconvenience to others.
- D. Remove dewatering system from Project site on completion of dewatering. Plug or fill well holes with sand or cut off and cap wells a minimum of 36 inches below overlying construction.

3.4 FIELD QUALITY CONTROL

- A. Observation Wells: Provide observation wells or piezometers, take measurements, and maintain at least the minimum number indicated; additional observation wells may be required by authorities having jurisdiction.
 - 1. Observe and record daily elevation of groundwater and piezometric water levels in observation wells.
 - 2. Repair or replace, within 24 hours, observation wells that become inactive, damaged, or destroyed. In areas where observation wells are not functioning properly, suspend construction activities until reliable observations can be made. Add or remove water from observation-well risers to demonstrate that observation wells are functioning properly.
 - 3. Fill observation wells, remove piezometers, and fill holes when dewatering is completed.
- B. Survey-Work Benchmarks: Resurvey benchmarks [regularly] [monthly] <Insert time period> during dewatering and maintain an accurate log of surveyed elevations for comparison with original elevations. Promptly notify Architect if changes in elevations occur or if cracks, sags, or other damage is evident in adjacent construction.
- C. Provide continual observation to ensure that subsurface soils are not being removed by the dewatering operation.
- D. Prepare reports of observations.

3.5 PROTECTION

- A. Protect and maintain dewatering system during dewatering operations.
- B. Promptly repair damages to adjacent facilities caused by dewatering.

END OF SECTION 312319

SECTION 312500 - EROSION AND SEDIMENTATION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

- A. This section covers work necessary for stabilization of soil to prevent erosion during and after construction and land disturbance activities. The work shall include furnishing all labor, materials, tools, and equipment to perform all work and services necessary for or incidental to the furnishing and installation, complete, of all operations in connection with erosion control as shown on drawings and as specified, in accordance with provisions of the Contract Documents, and completely coordinated with work of all other trades. The Contractor shall insure that all sedimentation features are in place prior to construction as necessary. Contractor shall remove the features as ground cover is established with approval of the Engineer and/or controlling authorities.
- B. The minimum areas requiring soil erosion and sediment control measures are indicated on the Drawings. The right is reserved to modify the use, location, and quantities of soil erosion and sedimentation control measures based on activities of the Contractor and as the Engineer considers to be the best interest of the Owner.
- C. Any governmental agency standard as noted below should be referenced as the latest, most recent, or current version of the referenced standard.
- D. The Contractor shall implement the approved Erosion and Sediment Control plan and follow all state requirements regarding sedimentation and erosion control. Construction methods shall minimize sedimentation and erosion.
- E. See additional information noted on the Drawings.

1.2 DEFINITIONS

- A. NCDOT: North Carolina Department of Transportation
- B. NCDEQ - DEMLR: North Carolina Department of Environmental Quality - Division of Energy, Mineral, and Land Resources.
- C. Standard Erosion Control Specification: North Carolina Erosion and Sediment Control Planning and Design Manual, latest version.

1.3 GENERAL

- A. All activities shall conform to the Standard Erosion Control Specification: North Carolina Erosion and Sediment Control Planning and Design Manual, latest version; the approved erosion control permit; the Specifications; and the Drawings. In the event of a conflict, the more stringent requirement shall apply.

- B. The Sections of the Standard Erosion Control Specifications referenced include, but are not limited to:

Standard & Specification No	Title
507.1	TEMPORARY SILT FENCE
509.1	SILT FENCE OUTLET OPTION 2
510.1	BLOCK AND GRAVEL STONE INLET PROTECTION
514.1	STABILIZED CONSTRUCTION ENTRANCE
525.1	EMBANKMENT MATTING DETAIL

- C. Soil erosion stabilization and sedimentation control shall consist of the following elements:
1. Maintenance of existing permanent or temporary storm drainage piping and channel systems, as necessary.
 2. Construction of temporary erosion control facilities such as silt fences, inlet protection, etc.
 3. Topsoil, Temporary Seeding, and Sod:
 - a. Placement and maintenance of Temporary Seeding on all areas disturbed by construction, as necessary
 - b. Placement of permanent topsoil, fertilizer, and sod, etc. in areas as specified on the Drawings.
 4. It is the intent that all areas in which construction activities have disturbed existing vegetation shall be temporarily seeded, as required, top soiled, and permanently sodded.
- D. The Contractor shall be responsible for phasing Work in areas allocated for his / her exclusive use during this Project, including any proposed stockpile areas, to restrict sediment transport. This will include installation of any temporary erosion control devices, ditches, or other facilities that may be required to comply with NCDEQ regulations and requirements.
- E. The areas set aside for the Contractor's use during the Project may be temporarily developed to provide satisfactory working, staging, and administrative areas for his / her exclusive use. Preparation of these areas shall be in accordance with other requirements contained within these Specifications and shall be done in a manner to both control all sediment transport from the project area, and to permit the area to be returned to design grades and drainage patterns upon completion of the project.
- F. Upon completion of the Project, all areas that have been disturbed by the Contractor shall be stabilized by top-soiling and permanent sodding seeding as shown on the Drawings.
- G. All permanent stockpiles, if any, shall be seeded with soil stabilization seed and protected by construction of two (2) rows of silt fence.

- H. Sediment transport and erosion from working stockpiles shall be controlled and restricted from moving beyond the immediate stockpile area by construction of temporary silt fence, as necessary. The Contractor shall keep these temporary facilities in operational condition by regular cleaning, re-grading, and maintenance.
- I. The Contractor shall maintain all elements of the Soil Erosion Stabilization and Sedimentation Control systems to be constructed during this Project for the duration of his / her activities on this Project. Formal inspections made jointly by the Contractor and the Engineer shall be conducted every week to evaluate the Contractor's conformance to the requirements of both these Specifications and NCDEQ regulations.
- J. Maintenance of the Soil Erosion Stabilization and Sedimentation Control systems constructed as part of this project shall be in accordance with the Drawings and NCDEQ Standard Erosion Control Specifications.
- K. Contractor shall remove all erosion control measures from the site once permit requirements for vegetation establishment have been met. All areas disturbed during the removal of erosion control measures shall be raked, stabilized, and planted per the Drawings.

1.4 SUBMITTALS

- A. Submittals shall be made in accordance with the Specifications, Section 013300, "Submittal Procedures."
- B. In addition, the Contractor shall provide the following specific information:
 - 1. If Contractor plans to vary erosion control phasing from the Drawings, then he / she shall submit a written plan, including definition and locations of phased erosion and sediment control for areas that will be disturbed during staged construction sequences. This information shall be provided to the Engineer and Owner, for review, before commencing any Work on the Project.

1.5 QUALITY ASSURANCE

- A. Perform Work according to NCDEQ-DEMLR standards.

1.6 INSPECTIONS AND RECORD KEEPING

- A. The Contractor is responsible for self-inspection of sedimentation and erosion control devices throughout the life of the Work, including preparation of self-inspection reports and NPDES Self-Monitoring Reports, to make sure the approved erosion and sedimentation control plan is being followed. To simplify documentation of Self-Inspection Reports and NPDES Self-Monitoring Reports, Contractor shall use a combined form available at <http://deq.nc.gov/about/divisions/energy-mineral-land-resources/erosion-sediment-control/forms>
- B. Contractor shall refer to Self-Inspection Reports Reporting Requirements on Drawings.

PART 2 - PRODUCTS

2.1 AGGREGATE

A. Temporary Construction Entrance

1. Furnish according to Standard Erosion Control Specification

B. Silt Fence Outlet

1. Furnish according to Standard Erosion Control Specification

2.2 GEOTEXTILES

A. Sediment Fence Geotextile

1. Furnish according to Standard Erosion Control Specification

B. Construction Entrance Geotextile

1. Furnish according to Standard Erosion Control Specification

C. Rolled Erosion Control Blanket

1. Rolled erosion control blankets shall have a minimum allowable shear stress of 1.5-lbs/ft² and a minimum longevity of 12 months
2. Anchoring devices for rolled erosion control blankets shall be minimum 11 gauge staples, 1-in wide, and 6-in long or 12-in minimum length wooden stakes.

2.3 TEMPORARY SLOPE DRAINS

- A. Furnish according to Standard Erosion Control Specification

2.5 SEDIMENT FENCE STEEL POSTS

- A. Furnish according to Standard Erosion Control Specification

2.6 SEDIMENT FENCE FABRIC REINFORCEMENT

- A. Furnish according to Standard Erosion Control Specification

2.7 COIR FIBER WATTLE

- A. Coir Fiber Wattle shall meet the following specifications:

1. 100% Coir (Coconut) Fibers
2. Minimum Diameter 12 in.
3. Minimum Density 3.5 lb/ft³ +/- 10%
4. Net Material Coir Fiber
5. Net Openings 2 in. x 2 in.

6. Net Strength 90 lbs.
7. Minimum Weight 2.6 lbs./ft. +/- 10%

2.8 PLANTING MATERIALS

- A. Temporary Seeding and Soil Supplements:
 1. Furnish according to Standard Erosion Control Specification
- B. Permanent Seeding (if used)
 1. Furnish according to Standard Erosion Control Specification
- C. Sod (if used)
 1. Furnish according to Owner requirements matching the existing natural turf within the project area.

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall install erosion and sediment control measures and maintain in accordance with the Drawings, the sequence of construction shown on the Drawings are made a part of these Contract Documents.
- B. The Contractor shall install any additional measures which the Engineer or Inspector may deem necessary to comply with the Standard Erosion Control Specification general criteria or NCDEQ Erosion Control requirements, at no additional cost to the Owner.
- C. The Contractor shall provide and maintain Temporary Seeding at all times.

3.2 SILT FENCE

- A. Silt fence to be installed as indicated on Drawings and per the Standard Erosion Control Specification. Silt fence to be placed prior to demolition, trench installations, or other clearing activities. Silt fence may be temporarily removed and replaced to facilitate construction.
- B. Maintenance shall be performed per the Standard Erosion Control Specification.
- C. After ground cover has been established and approved by Engineer and NCDEQ Erosion Control Inspector, the silt fence shall be removed and disposed of in an approved off-site location at the Contractor's expense.

3.3 SILT FENCE OUTLETS

- A. Install silt fence outlets per the details shown on Drawings and per the Standard Erosion Control Specification.

- B. Maintenance shall be performed per the Standard Erosion Control Specification.
- C. Contractor to verify silt fence outlet placement at low points as they exist or develop. Additional silt fence outlets may be required to prevent erosion during and after construction and land disturbance activities. If additional silt fence outlets are necessary, Contractor to add additional silt fence outlets per Engineer, NCDEQ Erosion Control Inspector, or Owner direction at no additional cost to the Owner.

3.4 TEMPORARY DIVERSION DITCHES AND SLOPE DRAINS

- A. Install temporary diversion ditches as shown on the drawings, details and per the Standard Erosion Control Specification.
- B. Where shown on the drawings, install rolled erosion control blankets and rock check dams per the details and the Standard Erosion Control Specification.
- C. Install temporary slope drains per the drawings and the Standard Erosion Control Specification where runoff from diversion ditches enters the sediment basins, as shown on the drawings.
- D. Maintenance shall be performed per the Standard Erosion Control Specification.

3.5 INLET PROTECTION

- A. Install Inlet Protection per the detail shown on Drawings and per the Standard Erosion Control Specification.
- B. Inlet protection shall be placed at the upstream side of any pipe or structure discharging outside of the disturbed limits. See Drawings for location.

3.6 CONSTRUCTION ENTRANCE

- A. Install construction entrance per the detail shown on Drawings and per the Standard Erosion Control Specification.
- B. Shall be maintained in a condition to prevent tracking or direct flow of mud onto adjacent roadways.

3.7 STOCKPILES

- A. Install stockpiles per the detail shown on Drawings and per the Standard Erosion Control Specification.
- B. Stockpile height shall not to exceed 15 feet and side slopes shall be 2 (H) to 1 (V) or flatter.
- C. Stockpile shall have a minimum double row of silt fence as shown on Drawings.

3.8 GROUND STABILIZATION

- A. Contractor shall provide ground stabilization per the Standard Erosion Control Specification and in accordance with the table below:

Site Area Description	Stabilization Time Frame	Stabilization Time Frame Exceptions
Perimeter Dikes, Swales, Ditches, and Slope	7 Days	None
High Quality Water (HQP) Zones	7 Days	None
Slopes Steeper Than 3:1	7 Days	If Slopes are 10' or less in length and are not steeper than 2:1, 14 Days
Slopes 3:1 or Flatter	14 Days	7-Days for slopes greater than 50-ft in length
All other areas with slopes flatter than 4:1	14 Days	None (except for perimeters and HQW zones)

3.9 TEMPORARY SEEDING

- A. Temporary Seeding is to be placed and maintained over all disturbed areas prior to Permanent Sodding per the detail shown on Drawings and per the Standard Erosion Control Specification
- B. Maintain Temporary Seeding until such time as areas are approved for permanent seeding. As a minimum, maintenance shall include the following:
 1. Fix-up and reseeding of bare areas or re-disturbed areas.
 2. Mowing for stands of grass or weeds exceeding 6 inches in height.

END OF SECTION 312500

SECTION 321313 - CONCRETE PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes Concrete Paving. Including the Following:
 - 1. Curbs and gutters.
 - 2. Walks.
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for general building applications of concrete.
 - 2. Section 321373 "Concrete Paving Joint Sealants" for joint sealants in expansion and contraction joints within concrete paving and in joints between concrete paving and asphalt paving or adjacent construction.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of blended hydraulic cement, fly ash, slag cement, and other pozzolans.
- B. W/C Ratio: The ratio by weight of water to cementitious materials.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.
 - 1. Review methods and procedures related to concrete paving, including but not limited to, the following:
 - a. Concrete mixture design.
 - b. Quality control of concrete materials and concrete paving construction practices.

2. Require representatives of each entity directly concerned with concrete paving to attend, including the following:
 - a. Contractor's superintendent.
 - b. Independent testing agency responsible for concrete design mixtures.
 - c. Concrete paving Subcontractor.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For qualified testing agency.
- B. Material Certificates: For the following, from manufacturer:
 1. Cementitious materials.
 2. Steel reinforcement and reinforcement accessories.
 3. Admixtures.
 4. Curing compounds.
 5. Bonding agent or epoxy adhesive.
 6. Joint fillers.
- C. Material Test Reports: For each of the following:
 1. Aggregates: Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- D. Field quality-control reports.

1.7 QUALITY ASSURANCE

- A. Ready-Mix-Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C94/C94M requirements for production facilities and equipment.
 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities" (Quality Control Manual - Section 3, "Plant Certification Checklist").

- B. Testing Agency Qualifications: Qualified according to ASTM C1077 and ASTM E329 for testing indicated.
 - 1. Personnel conducting field tests shall be qualified as ACI Concrete Field Testing Technician, Grade 1, according to ACI CP-1 or an equivalent certification program.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified independent testing agency to perform preconstruction testing on concrete paving mixtures.

1.9 FIELD CONDITIONS

- A. Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.
- B. Cold-Weather Concrete Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- C. Hot-Weather Concrete Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap, so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

PART 2 - PRODUCTS

2.1 CONCRETE, GENERAL

- A. ACI Publications: Comply with ACI 301 unless otherwise indicated.

2.2 FORMS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.
- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.3 STEEL REINFORCEMENT

- A. Plain-Steel Welded-Wire Reinforcement: ASTM A1064/A1064M, fabricated from steel wire into flat sheets.
- B. Epoxy-Coated, Joint Dowel Bars: ASTM A775/A775M; with ASTM A615/A615M, Grade 60 plain-steel bars.

2.4 CONCRETE MATERIALS

- A. Cementitious Materials: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: ASTM C150/C150M, gray portland cement Type I.
 - 2. Fly Ash: ASTM C618, Class C.
 - 3. Slag Cement: ASTM C989/C989M, Grade 100 or 120.
 - 4. Blended Hydraulic Cement: ASTM C595/C595M, Type IS, portland blast-furnace slag cement.
- B. Normal-Weight Aggregates: ASTM C33/C33M, Class 4S, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: 1-1/2 inches nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Air-Entraining Admixture: ASTM C260/C260M.

- D. Chemical Admixtures: Admixtures certified by manufacturer to be compatible with other admixtures and to contain not more than 0.1 percent water-soluble chloride ions by mass of cementitious material.
 - 1. Water-Reducing Admixture: ASTM C494/C494M, Type A.
 - 2. Retarding Admixture: ASTM C494/C494M, Type B.
 - 3. Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type D.
 - 4. High-Range, Water-Reducing Admixture: ASTM C494/C494M, Type F.
 - 5. High-Range, Water-Reducing and Retarding Admixture: ASTM C494/C494M, Type G.
 - 6. Plasticizing and Retarding Admixture: ASTM C1017/C1017M, Type II.
- E. Water: Potable and complying with ASTM C94/C94M.

2.5 CURING MATERIALS

- A. Absorptive Cover: AASHTO M 182, Class 3, burlap cloth made from jute or kenaf, weighing approximately 9 oz./sq. yd.
- B. Moisture-Retaining Cover: ASTM C171, polyethylene film or white burlap-polyethylene sheet.
- C. Water: Potable.
- D. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- E. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C309, Type 1, Class B, dissipating.

2.6 RELATED MATERIALS

- A. Joint Fillers: ASTM D1751, asphalt-saturated cellulosic fiber in preformed strips.
- B. Bonding Agent: ASTM C1059/C1059M, Type II, non-redispersible, acrylic emulsion or styrene butadiene.
- C. Epoxy-Bonding Adhesive: ASTM C881/C881M, two-component epoxy resin capable of humid curing and bonding to damp surfaces; of class suitable for application temperature, of grade complying with requirements, and of the following types:
 - 1. Types I and II, non-load bearing, for bonding hardened or freshly mixed concrete to hardened concrete.

2.7 CONCRETE MIXTURES

- A. Prepare design mixtures, proportioned according to ACI 301 for each type and strength of normal-weight concrete, and as determined by either laboratory trial mixtures or field experience.
 - 1. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. When automatic machine placement is used, determine design mixtures and obtain laboratory test results that comply with or exceed requirements.
- B. Cementitious Materials: Limit percentage, by weight, of cementitious materials other than portland cement in concrete as follows:
 - 1. Fly Ash or Pozzolan: 25 percent.
 - 2. Slag Cement: 50 percent.
 - 3. Combined Fly Ash or Pozzolan, and Slag Cement: 50 percent, with fly ash or pozzolan not exceeding 25 percent.
- C. Add air-entraining admixture at manufacturer's prescribed rate to result in normal-weight concrete at point of placement having an air content as follows:
 - 1. Air Content, 1-1/2-inch Nominal Maximum Aggregate Size: 5-1/2 percent plus or minus 1-1/2 percent.
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.
- E. Chemical Admixtures: Use admixtures according to manufacturer's written instructions.
 - 1. Use water-reducing admixture in concrete as required for placement and workability.
 - 2. Use water-reducing and retarding admixture when required by high temperatures, low humidity, or other adverse placement conditions.
- F. Concrete Mixtures: Normal-weight concrete.
 - 1. Compressive Strength (28 Days): 4000 psi.
 - 2. Maximum W/C Ratio at Point of Placement: 0.50.

2.8 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

- B. Project-Site Mixing: Measure, batch, and mix concrete materials and concrete according to ASTM C94/C94M. Mix concrete materials in appropriate drum-type batch machine mixer.
 - 1. For concrete batches of 1 cu. yd. or smaller, continue mixing at least 1-1/2 minutes, but not more than 5 minutes after ingredients are in mixer, before any part of batch is released.
 - 2. For concrete batches larger than 1 cu. yd., increase mixing time by 15 seconds for each additional 1 cu. yd.
 - 3. Provide batch ticket for each batch discharged and used in the Work, indicating Project identification name and number, date, mixture type, mixing time, quantity, and amount of water added.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and subbase surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.
- B. Proof-roll prepared subbase surface below concrete paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Section 312000 "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 INSTALLATION OF STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded-wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.
- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
 - 1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 - 2. Provide tie bars at sides of paving strips where indicated.
 - 3. Butt Joints: Use bonding agent at joint locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.
 - 4. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, other fixed objects, and where indicated.
 - 1. Locate expansion joints at intervals of 30 feet unless otherwise indicated.
 - 2. Extend joint fillers full width and depth of joint.
 - 3. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 - 4. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 - 5. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 - 6. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows, to match jointing of existing adjacent concrete paving:
 - 1. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
 - a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius. Repeat tooling of edges after applying surface finishes.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.
- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating dowels joint devices.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleedwater appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.

- J. Curbs and Gutters: Use design mixture for automatic machine placement. Produce curbs and gutters to required cross section, lines, grades, finish, and jointing.
- K. Slip-Form Paving: Use design mixture for automatic machine placement. Produce paving to required thickness, lines, grades, finish, and jointing.
 - 1. Compact subbase and prepare subgrade of sufficient width to prevent displacement of slip-form paving machine during operations.

3.7 FLOAT FINISHING

- A. General: Do not add water to concrete surfaces during finishing operations.
- B. Float Finish: Begin the second floating operation when bleedwater sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Coarse-Textured Broom Finish: Provide a coarse finish by striating float-finished concrete surface 1/16 to 1/8 inch deep with a stiff-bristled broom, perpendicular to line of traffic.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures.
- B. Comply with ACI 306.1 for cold-weather protection.
- C. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- D. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- E. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound, or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inchlap over adjacent absorptive covers.

2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches, and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period, using cover material and waterproof tape.
3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

A. Comply with tolerances in ACI 117 and as follows:

1. Elevation: 3/4 inch.
2. Thickness: Plus 3/8 inch, minus 1/4 inch.
3. Surface: Gap below 10-feet- long; unlevelled straightedge not to exceed 1/2 inch.
4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
5. Lateral Alignment and Spacing of Dowels: 1 inch.
6. Vertical Alignment of Dowels: 1/4 inch.
7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
8. Joint Spacing: 3 inches.
9. Contraction Joint Depth: Plus 1/4 inch, no minus.
10. Joint Width: Plus 1/8 inch, no minus.

3.10 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.
- B. Testing Services: Testing and inspecting of composite samples of fresh concrete obtained according to ASTM C172/C172M shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 100 cu. yd. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C143/C143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C231/C231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.

4. Concrete Temperature: ASTM C1064/C1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C31/C31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C39/C39M; test one specimen at seven days, three specimens at 28 days, and one cylinder at 56 days (if needed).
 - a. A compressive-strength test shall be the average compressive strength from three specimens obtained from same composite sample and tested at 28 days.
- C. Strength of each concrete mixture will be satisfactory if average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- D. Test results shall be reported in writing to Designer, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- E. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Designer but will not be used as sole basis for approval or rejection of concrete.
- F. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, air entrainment, compressive strengths, or other requirements have not been met, as directed by Designer.
- G. Concrete paving will be considered defective if it does not pass tests and inspections.
- H. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- I. Prepare test and inspection reports.
- 3.11 REPAIR AND PROTECTION
- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Designer.
 - B. Drill test cores, where directed by Designer, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.

- C. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- D. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION 321313

SECTION 321373 - CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Cold-applied joint sealants.
 - 2. Joint-sealant backer materials.
 - 3. Primers.
- B. Related Requirements:
 - 1. Section 321313 "Concrete Paving" for constructing joints in concrete pavement.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.

1.4 ACTION SUBMITTALS

- A. Product Data:
 - 1. Concrete pavement joint sealants.
 - 2. Joint-sealant backer materials.
- B. Samples for Initial Selection: Manufacturer's standard color samples, showing full range of available colors for each type of joint sealant.
- C. Paving-Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.5 QUALITY ASSURANCE

A. Qualifications:

1. Installers: Entity that employs installers and supervisors who are trained and approved by manufacturer.

1.6 PRECONSTRUCTION TESTING

- #### A. Preconstruction Testing: Performed by a qualified testing agency.

1.7 FIELD CONDITIONS

- #### A. Do not proceed with installation of joint sealants under the following conditions:

1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
2. When joint substrates are wet.
3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

PART 2 - PRODUCTS

2.1 SOURCE LIMITATIONS

- #### A. Obtain joint sealants from single manufacturer for each sealant type.

2.2 JOINT SEALANTS, GENERAL

- #### A. Compatibility: Provide joint sealants, backer materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.3 COLD-APPLIED JOINT SEALANTS

- #### A. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D5893/D5893M, Type SL.

2.4 JOINT-SEALANT BACKER MATERIALS

- A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.
- B. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D5249, Type 1, of diameter and density required to control sealant depth and prevent bottom-side adhesion of sealant.

2.5 PRIMERS

- A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

- A. Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated unless more stringent requirements apply.
- B. Joint-Sealant Installation Standard: Comply with recommendations in ASTM C1193 for use of joint sealants as applicable to materials, applications, and conditions.

- C. Install joint-sealant backers to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of joint-sealant backer materials.
 - 2. Do not stretch, twist, puncture, or tear joint-sealant backer materials.
 - 3. Remove absorbent joint-sealant backer materials that have become wet before sealant application and replace them with dry materials.
- D. Install joint sealants immediately following backer material installation, using proven techniques that comply with the following:
 - 1. Place joint sealants so they fully contact joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

- A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.
- B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

3.5 PAVING-JOINT-SEALANT SCHEDULE

- A. Joints within concrete paving:
 - 1. Joint Location:
 - a. Expansion and isolation joints in concrete paving.
 - b. Contraction joints in concrete paving.
 - c. Other joints as indicated.
- B. Single-Component, Self-Leveling, Silicone Joint Sealant: ASTM D5893/D5893M, Type SL.
 - 1. Joint-Sealant Color: Selected from manufacturer's full range.

END OF SECTION 321373

SECTION 321400 - UNIT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Concrete pavers.
 - 2. Curbs edge restraints.
- B. Related Requirements:
 - 1. Section 033000 "Cast-in-Place Concrete" for cast-in-place concrete curbs and gutters serving as edge restraints for unit pavers.

1.3 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.

1.4 ACTION SUBMITTALS

- A. Product Data: For materials other than water and aggregates.
- B. Sieve Analyses: For aggregate setting-bed materials, according to ASTM C 136.
- C. Samples for Initial Selection: For each type of unit paver indicated and the following:
 - 1. Joint materials involving color selection.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Material Certificates: For unit pavers. Include statements of material properties indicating compliance with requirements, including compliance with standards. Provide for each type and size of unit.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified unit paving installer. Installer's field supervisor must have Concrete Paver Installer Certification from the Interlocking Concrete Pavement Institute (ICPI) with the Commercial Paver Technician Designation.
- B. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.
 - 1. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

- A. Store pavers on elevated platforms in a dry location. If units are not stored in an enclosed location, cover tops and sides of stacks with waterproof sheeting, securely tied.
- B. Store cementitious materials on elevated platforms, under cover, and in a dry location. Do not use cementitious materials that have become damp.
- C. Store aggregates where grading and other required characteristics can be maintained and contamination can be avoided.

1.8 FIELD CONDITIONS

- A. Cold-Weather Protection: Do not use frozen materials or materials mixed or coated with ice or frost. Do not build on frozen subgrade or setting beds. Remove and replace unit paver work damaged by frost or freezing.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. Source Limitations: Obtain each type of unit paver, joint material, and setting material from single source with resources to provide materials and products of consistent quality in appearance and physical properties.

2.2 CONCRETE PAVERS

- A. Concrete Pavers, Solid Paving Units, Normal-Weight Concrete: Solid paving units made from normal-weight concrete with a compressive strength not less than 8000 psi, water absorption not more than 5 percent according to ASTM C140, and no breakage and 28 freeze-thaw cycles with no greater loss than 225 g/m² of paver surface area or no greater loss than 500 g/m² of

paver surface area after 49 freeze-thaw cycles. Use the lowest freezing temperature in C1645 per the Appendix and zone map in C936.

1. Thickness: 2-3/4 inches.
2. Face Size and Shape:
 - a. 4-7/16-by-11-inch rectangle.
3. Color: As indicated by manufacturer's designations – see construction drawings.

2.3 CURBS AND EDGE RESTRAINTS

- A. Job-Built Concrete Edge Restraints: Comply with requirements in Section 033000 "Cast-in-Place Concrete" for normal-weight, air-entrained, ready-mixed concrete with minimum 28-day compressive strength of 4000 psi.

2.4 AGGREGATE SETTING-BED MATERIALS

- A. Graded Aggregate for Subbase: Sound, crushed stone or gravel complying with ASTM D448 for Size No. 57.
- A. Sand for Leveling Course: Sound, sharp, washed, natural sand or crushed stone complying with gradation requirements in ASTM C33/C33M for fine aggregate.
- B. Polymeric Sand for Joints: Provide sand of color needed to produce required joint color.
- C. Separation Geotextile: Woven geotextile fabric, manufactured for separation applications; made from polyolefins or polyesters, with elongation less than 50 percent; complying with AASHTO M 288 and the following, measured per test methods referenced:
 1. Survivability: Class 2, AASHTO M 288.
 2. Apparent Opening Size: No. 60 sieve, maximum; ASTM D 4751.
 3. Permittivity: 0.02 per second, minimum; ASTM D 4491.
 4. UV Stability: 50 percent after 500 hours' exposure, ASTM D 4355.
- D. Herbicide: Commercial chemical for weed control, registered with the EPA. Provide in granular, liquid, or wettable powder form.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine surfaces indicated to receive unit paving, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance.

- B. Where unit paving is to be installed over waterproofing, examine waterproofing installation, with waterproofing Installer present, for protection from paving operations, including areas where waterproofing system is turned up or flashed against vertical surfaces.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Proof-roll prepared subgrade according to requirements in Section 312000 "Earth Moving" to identify soft pockets and areas of excess yielding. Proceed with unit paver installation only after deficient subgrades have been corrected and are ready to receive subbase course for unit pavers.

3.3 INSTALLATION, GENERAL

- A. Do not use unit pavers with chips, cracks, voids, discolorations, or other defects that might be visible or cause staining in finished work.
- B. Mix pavers from several pallets or cubes, as they are placed, to produce uniform blend of colors and textures.
- C. Cut unit pavers with motor-driven masonry saw equipment to provide clean, sharp, unchipped edges. Cut units to provide pattern indicated and to fit adjoining work neatly. Use full units without cutting where possible. Hammer cutting is not acceptable.
 - 1. For concrete pavers, a block splitter may be used.
- D. Joint Pattern: Herringbone as indicated.
- E. Tolerances: Do not exceed 1/32-inch unit-to-unit offset from flush (lippage) or 1/8 inch in 10 feet from level, or indicated slope, for finished surface of paving.
- F. Provide edge restraints as indicated. Install edge restraints after placing unit pavers.
 - 1. Install job-built concrete edge restraints to comply with requirements in Section 033000 "Cast-in-Place Concrete."

3.4 AGGREGATE SETTING-BED APPLICATIONS

- A. Compact soil subgrade uniformly to at least 95 percent of laboratory density.
- B. Proof-roll prepared subgrade to identify soft pockets and areas of excess yielding. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Designer, and replace with compacted backfill or fill as directed.
- C. Place aggregate base, compact by tamping with plate vibrator, and screed to depth indicated.

- D. Place geotextile over compacted base course, overlapping ends and edges at least 12 inches.
- E. Place leveling course and screed to a thickness of 1 inch, taking care that moisture content remains constant and density is loose and uniform until pavers are set and compacted.
- F. Treat leveling course with herbicide to inhibit growth of grass and weeds.
- G. Set pavers with a minimum joint width of 1/16 inch and a maximum of 1/8 inch, being careful not to disturb leveling base. If pavers have spacer bars, place pavers hand tight against spacer bars. Use string lines to keep straight lines. Fill gaps between units that exceed 3/8 inch with pieces cut to fit from full-size unit pavers.
- H. Vibrate pavers into leveling course with a low-amplitude plate vibrator capable of a 3500- to 5000-lbf compaction force at 80 to 90 Hz. Use vibrator with neoprene mat on face of plate or other means as needed to prevent cracking and chipping of pavers. Perform at least three passes across paving with vibrator.
 - 1. Compact pavers when there is sufficient surface to accommodate operation of vibrator, leaving at least 36 inches of uncompacted pavers adjacent to temporary edges.
 - 2. Before ending each day's work, compact installed concrete pavers except for 36-inch width of uncompacted pavers adjacent to temporary edges (laying faces).
 - 3. As work progresses to perimeter of installation, compact installed pavers that are adjacent to permanent edges unless they are within 36 inches of laying face.
 - 4. Before ending each day's work and when rain interrupts work, cover pavers that have not been compacted and cover leveling course on which pavers have not been placed with nonstaining plastic sheets to protect them from rain.
- I. Spread dry polymeric joint sand and fill joints immediately after vibrating pavers into leveling course. Vibrate pavers and add jointing sand until joints are completely filled, then remove excess sand. Leave a slight surplus of sand on the surface for joint filling.
- J. Do not allow traffic on installed pavers until sand has been vibrated into joints.
- K. Repeat joint-filling process 30 days later.

3.5 REPAIRING, POINTING, AND CLEANING

- A. Remove and replace unit pavers that are loose, chipped, broken, stained, or otherwise damaged or that do not match adjoining units. Provide new units to match adjoining units and install in same manner as original units, with same joint treatment and with no evidence of replacement.

END OF SECTION 321400

SECTION 329113 - SOIL PREPARATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Provide or create soil mixes for planting that meets or exceeds the standards contained herein.
- B. Related Sections:
 - 1. Section 311000 "Site Clearing" for topsoil stripping and stockpiling.
 - 2. Section 329119 "Landscape Grading"
 - 3. Section 329200 "Turf and Grasses" for placing planting soil for turf and grasses.
 - 4. Section 329300 "Plants" for placing planting soil for plantings.

1.3 DEFINITIONS

- A. AAPFCO: Association of American Plant Food Control Officials.
- B. Backfill: The earth used to replace or the act of replacing earth in an excavation. This can be amended or unamended soil as indicated.
- C. CEC: Cation exchange capacity.
- D. Compost: The product resulting from the controlled biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth.
- E. Imported Soil: Soil that is transported to Project site for use.
- F. Manufactured Soil: Soil produced by blending soils, sand, stabilized organic soil amendments, and other materials to produce planting soil.
- G. Organic Matter: The total of organic materials in soil exclusive of undecayed plant and animal tissues, their partial decomposition products, and the soil biomass; also called "humus" or "soil organic matter."
- H. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified as specified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth.

- I. RCRA Metals: Hazardous metals identified by the EPA under the Resource Conservation and Recovery Act.
- J. SSSA: Soil Science Society of America.
- K. Subgrade: Surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.
- L. Subsoil: Soil beneath the level of subgrade; soil beneath the topsoil layers of a naturally occurring soil profile, typified by less than 1 percent organic matter and few soil organisms.
- M. Surface Soil: Soil that is present at the top layer of the existing soil profile. In undisturbed areas, surface soil is typically called "topsoil"; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- N. USCC: U.S. Composting Council.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.

1.5 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include recommendations for application and use.
 - 2. Include test data substantiating that products comply with requirements.
 - 3. Include sieve analyses for aggregate materials.
 - 4. Material Certificates: For each type of imported soil and soil amendment and fertilizer before delivery to the site, according to the following:
 - a. Manufacturer's qualified testing agency's certified analysis of standard products.
 - b. Analysis of fertilizers, by a qualified testing agency, made according to AAPFCO methods for testing and labeling and according to AAPFCO's SU1P #25.
 - c. Analysis of nonstandard materials, by a qualified testing agency, made according to SSSA methods, where applicable.
- B. Samples: For each bulk-supplied material, 1-gal. volume of each in sealed containers labeled with content, source, and date obtained. Each Sample shall be typical of the lot of material to be furnished; provide an accurate representation of composition, color, and texture.

1.6 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For each testing agency.
- B. Preconstruction Test Reports: For preconstruction soil analyses specified in "Preconstruction Testing" Article.

- C. Field quality-control reports.

1.7 QUALITY ASSURANCE

- A. Testing Agency Qualifications: An independent, state-operated, or university-operated laboratory; experienced in soil science, soil testing, and plant nutrition; with the experience and capability to conduct the testing indicated; and that specializes in types of tests to be performed.
 - 1. Laboratories: Subject to compliance with requirements.
 - 2. Multiple Laboratories: At Contractor's option, work may be divided among qualified testing laboratories specializing in physical testing, chemical testing, and fertility testing.

1.8 PRECONSTRUCTION TESTING

- A. Preconstruction Testing Service: Engage a qualified testing agency to perform preconstruction soil analyses on imported soil.
 - 1. Notify Designer seven days in advance of the dates and times when laboratory samples will be taken.
- B. Preconstruction Soil Analyses: For each unamended soil type, perform testing on soil samples and furnish soil analysis and a written report containing soil-amendment and fertilizer recommendations by a qualified testing agency performing the testing according to "Soil-Sampling Requirements" and "Testing Requirements" articles.
 - 1. Have testing agency identify and label samples and test reports according to sample collection and labeling requirements.

1.9 SOIL-SAMPLING REQUIREMENTS

- A. General: Extract soil samples according to requirements in this article.
- B. Sample Collection and Labeling: Have samples taken and labeled by Contractor under the direction of the testing agency.
 - 1. Number and Location of Samples: Minimum of five representative soil samples from varied locations for each soil to be used or amended for landscaping purposes.
 - 2. Procedures and Depth of Samples: According to USDA-NRCS's "Field Book for Describing and Sampling Soils."
 - 3. Division of Samples: Split each sample into two, equal parts. Send half to the testing agency and half to Owner for its records.
 - 4. Labeling: Label each sample with the date, location keyed to a site plan or other location system, visible soil condition, and sampling depth.

1.10 TESTING REQUIREMENTS

- A. General: Perform tests on soil samples according to requirements in this article.

B. Physical Testing:

1. Soil Texture: Soil-particle, size-distribution analysis by one of the following methods according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods":
 - a. Sieving Method: Report sand-gradation percentages for very coarse, coarse, medium, fine, and very fine sand; and fragment-gradation (gravel) percentages for fine, medium, and coarse fragments; according to USDA sand and fragment sizes.
 - b. Hydrometer Method: Report percentages of sand, silt, and clay.
2. Total Porosity: Calculate using particle density and bulk density according to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."
3. Water Retention: According to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods."
4. Saturated Hydraulic Conductivity: According to SSSA's "Methods of Soil Analysis - Part 1-Physical and Mineralogical Methods"; at 85% compaction according to ASTM D698 (Standard Proctor).

C. Chemical Testing:

1. CEC: Analysis by sodium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."
2. Clay Mineralogy: Analysis and estimated percentage of expandable clay minerals using CEC by ammonium saturation at pH 7 according to SSSA's "Methods of Soil Analysis - Part 1- Physical and Mineralogical Methods."
3. Metals Hazardous to Human Health: Test for presence and quantities of RCRA metals including aluminum, arsenic, barium, copper, cadmium, chromium, cobalt, lead, lithium, and vanadium. If RCRA metals are present, include recommendations for corrective action.
4. Phytotoxicity: Test for plant-available concentrations of phytotoxic minerals including aluminum, arsenic, barium, cadmium, chlorides, chromium, cobalt, copper, lead, lithium, mercury, nickel, selenium, silver, sodium, strontium, tin, titanium, vanadium, and zinc.

D. Fertility Testing: Soil-fertility analysis according to standard laboratory protocol including the following:

1. Percentage of organic matter.
2. CEC, calcium percent of CEC, and magnesium percent of CEC.
3. Soil reaction (acidity/alkalinity pH value).
4. Buffered acidity or alkalinity.
5. Nitrogen ppm.
6. Phosphorous ppm.
7. Potassium ppm.
8. Manganese ppm.
9. Manganese-availability ppm.
10. Zinc ppm.
11. Zinc availability ppm.
12. Copper ppm.

13. Sodium ppm and sodium absorption ratio.
 14. Soluble-salts ppm.
 15. Presence and quantities of problem materials including salts and metals cited in the Standard protocol. If such problem materials are present, provide additional recommendations for corrective action.
 16. Other deleterious materials, including their characteristics and content of each.
- E. Organic-Matter Content: Analysis using loss-by-ignition method according to SSSA's "Methods of Soil Analysis - Part 3- Chemical Methods."
- F. Recommendations: Based on the test results, state recommendations for soil treatments and soil amendments to be incorporated to produce satisfactory planting soil suitable for healthy, viable plants indicated. Include, at a minimum, recommendations for nitrogen, phosphorous, and potassium fertilization, and for micronutrients.
1. Fertilizers and Soil Amendment Rates: State recommendations in weight per 1000 sq. ft. for 6-inch depth of soil.
 2. Soil Reaction: State the recommended liming rates for raising pH or sulfur for lowering pH according to the buffered acidity or buffered alkalinity in weight per 1000 sq. ft. for 6-inch depth of soil.

1.11 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and compliance with state and Federal laws if applicable. In lieu of containers, fertilizer and soil amendments may be furnished in bulk, with a certificate indicating the above information accompanying each delivery.
- B. Before and after delivery, fertilizer and soil amendments shall be kept in a dry storage area away from contaminants. Precautions shall be taken prior to use to prevent rupture of packaging and to prevent wetting, contamination, or deterioration.
- C. Bulk Materials:
1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials, discharge of soil-bearing water runoff, and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Do not move or handle materials when they are wet or frozen.
 4. Accompany each delivery of bulk fertilizers and soil amendments with appropriate certificates.

PART 2 - PRODUCTS

2.1 SOIL TYPES

- A. General: Soil amendments, fertilizers, and rates of application specified in this article are guidelines that may need revision based on testing laboratory's recommendations after preconstruction soil analyses are performed.
- B. Topsoil: Native soil on site or natural soil harvested from another site that naturally has the texture and composition to meet the specification described below, and is free of noxious weed seed, shall constitute an Acceptable Planting Media (APM).
- C. Planting mix for Lawn, Turf or Seeding Areas: A planting mix may be developed that will be an Acceptable Planting Media by amending the existing soil or by removing the existing soil and replacing it with new planting mix. The planting mix shall have uniform composition throughout, with a mixture of subsoil. It shall be free of stones, lumps, live plants and their roots, sticks, and other extraneous matter. It shall contain no man-made materials unless otherwise specified. Planting mix shall not be used while in a frozen or muddy condition.
 - 1. Unless there are unusual circumstances with project and unless otherwise specified in the contract documents and approved by the Grounds Superintendent and/or designee, the Acceptable Planting Media shall contain the following specified percentages of constituents:
 - a. CLAY Minimum 10%/Maximum 40%
 - b. SAND Minimum 20%/Maximum 50%
 - c. SILT Minimum 20%/Maximum 50%
 - d. ORGANIC MATTER Minimum 5%/Maximum 10%
 - 2. Organic Matter is defined as compost/humus such as sawdust or leaf mold that has completed the decomposition process. Compost shall be well-composted, stable, and weed-free material bearing USCC's "Seal of Testing Assurance". Wood derivatives shall be shredded and composted, nitrogen-treated, of uniform texture and free of chips, stones, sticks, soil, or toxic materials. Percentage of organic matter shall be determined by loss on ignition of moisture free samples dried at 65 degrees.
 - 3. APM shall have an acidity range of pH 6.5 to 7.0.
- D. Planting mix for Tree and/or Bed/Shrub Planting Areas: A planting mix may be developed that will be an Acceptable Planting Media by amending the existing soil or by removing the existing soil and replacing it with new planting mix. The planting mix shall have uniform composition throughout, with a mixture of subsoil. It shall be free of stones, lumps, live plants and their roots, sticks, and other extraneous matter. It shall contain no man-made materials unless otherwise specified. Planting mix shall not be used while in a frozen or muddy condition.
 - 1. Unless there are unusual circumstances with project and unless otherwise specified in the contract documents and approved by the Grounds Superintendent and/or designee, the Acceptable Planting Media shall contain the following specified percentages of constituents:

- a. CLAY Minimum 10%/Maximum 40%
 - b. SAND Minimum 20%/Maximum 50%
 - c. SILT Minimum 20%/Maximum 50%
 - d. ORGANIC MATTER Minimum 15%/Maximum 20%
 2. Organic Matter is defined as compost/humus such as sawdust or leaf mold that has completed the decomposition process. Compost shall be well-composted, stable, and weed-free material bearing USCC's "Seal of Testing Assurance". Wood derivatives shall be shredded and composted, nitrogen-treated, of uniform texture and free of chips, stones, sticks, soil, or toxic materials. Percentage of organic matter shall be determined by loss on ignition of moisture free samples dried at 65 degrees.
 3. APM shall have an acidity range of pH 6.5 to 7.0.
- E. Soils can be placed on a pre-approved list by the Grounds Superintendent and/or designee, after a vendor has proved that they have the ability to provide the soils as described and be consistent with the mixtures. The Grounds Department retest soils and recompiles this list annually. Other soils can be tested throughout the year and placed on the list, if approved, at the contractor's or vendor's request. Thirty calendar days for approval is required. Grounds Management will collect the samples and submit the first soil samples for laboratory testing. Any sample that requires resubmittal for approval will be the contractor's or vendor's responsibility and must be tested by a reputable soil testing lab.

2.2 SOIL CONDITIONER

- A. Work covered in this special provision includes supplying and applying composted soil conditioner. Soil conditioner is an organic soil additive that is mixed with the soil in order to improve its internal drainage, structure, nutrient holding capacity, nutrient holding capacity or to improve organic matter composition. Composted soil conditioner must be thoroughly mixed and tilled into the top 8" and 10" of the existing soil in all areas to be planted.
- B. Soil conditioner shall be composted and aged pine bark, screened to be 9/16" size or smaller. It shall be black in color, not be fresh, have no pine bark smell and have an acidity of pH 5.8 to 6.0. A sample of the composted soil conditioner must be submitted to the Owner's Representative for approval prior to installation.

2.3 ORGANIC SOIL AMENDMENTS

- A. Compost: Well-composted, stable, and weed-free organic matter produced by composting feedstock, and bearing USCC's "Seal of Testing Assurance," and as follows:
 1. Reaction: pH of 5.5 to 8.
 2. Soluble-Salt Concentration: Less than 4 dS/m.
 3. Moisture Content: 35 to 55 percent by weight.
 4. Organic-Matter Content: 30 to 40 percent of dry weight.
 5. Particle Size: Minimum of 98 percent passing through a 1/2-inch sieve.

- B. Sphagnum Peat: Partially decomposed sphagnum peat moss, finely divided or of granular texture with 100 percent passing through a 1/2-inch sieve, a pH of 3.4 to 4.8, and a soluble-salt content measured by electrical conductivity of maximum 5 dS/m.
- C. Muck Peat: Partially decomposed moss peat, native peat, or reed-sedge peat, finely divided or of granular texture with 100 percent passing through a 1/2-inch sieve, a pH of 6 to 7.5, a soluble-salt content measured by electrical conductivity of maximum 5 dS/m, having a water-absorbing capacity of 1100 to 2000 percent, and containing no sand.
- D. Wood Derivatives: Shredded and composted, nitrogen-treated sawdust, ground bark, or wood waste; of uniform texture and free of chips, stones, sticks, soil, or toxic materials.
 - 1. Partially Decomposed Wood Derivatives: In lieu of shredded and composted wood derivatives, mix shredded and partially decomposed wood derivatives with ammonium nitrate at a minimum rate of 0.15 lb/cu. ft. of loose sawdust or ground bark, or with ammonium sulfate at a minimum rate of 0.25 lb/cu. ft. of loose sawdust or ground bark.

2.4 FERTILIZERS

- A. Slow-Release Fertilizer: Granular or pelleted fertilizer consisting of 50 percent water-insoluble nitrogen, phosphorus, and potassium in the following composition:
 - 1. Composition: 20 percent nitrogen, 10 percent phosphorous, and 10 percent potassium, by weight.
 - 2. Composition: Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified testing agency.

PART 3 - EXECUTION

3.1 GENERAL

- A. Place planting soil and fertilizers according to requirements in other Specification Sections.
- B. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in planting soil.
- C. Proceed with placement only after unsatisfactory conditions have been corrected.
- D. Product supplied must meet the specification above as determined by soil testing at an approved lab or be supplied from a vendor on the Grounds Department's pre-approved list. Soil shall not be handled or spread when moisture content is excessively high.

3.2 PREPARATION OF UNAMENDED, ON-SITE SOIL BEFORE AMENDING

- A. Excavation: Excavate soil from designated area(s) to a depth of 6 inches and stockpile until amended.

- B. Unacceptable Materials: Clean soil of concrete slurry, concrete layers or chunks, cement, plaster, building debris, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, acid, and other extraneous materials that are harmful to plant growth.
- C. Unsuitable Materials: Clean soil to contain a maximum of 5 percent by dry weight of stones, roots, plants, sod, clay lumps, and pockets of coarse sand.
- D. Screening: Pass unamended soil through a 2-inch sieve to remove large materials.

3.3 PLACING AND MIXING PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply and mix unamended soil with amendments on-site to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Subgrade Preparation: Till subgrade to a minimum depth of 18 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off the project site.
 - 1. Apply, add soil amendments, and mix approximately half the thickness of unamended soil over prepared, loosened subgrade according to "Mixing" Paragraph below. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil.
- C. Mixing: Spread unamended soil to total depth of 6 inches but not less than required to meet finish grades after mixing with amendments and natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
 - 1. Amendments: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them with unamended soil to produce planting soil.
 - a. Mix lime and potassium with dry soil before mixing fertilizer.
 - b. Mix fertilizer with planting soil no more than seven days before planting.
 - 2. Lifts: Apply and mix unamended soil and amendments in lifts not exceeding 12 inches in loose depth for material compacted by compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers.
- D. Compaction: Compact each blended lift of planting soil to 75 percent of maximum Standard Proctor density according to ASTM D698 and tested in-place.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.4 PLACING MANUFACTURED PLANTING SOIL OVER EXPOSED SUBGRADE

- A. General: Apply manufactured soil on-site in its final, blended condition. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.

- B. Subgrade Preparation: Till subgrade to a minimum depth of 18 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
 - 1. Apply approximately half the thickness of planting soil over prepared, loosened subgrade. Mix thoroughly into top 4 inches of subgrade. Spread remainder of planting soil.
- C. Application: Spread planting soil to total depth of 6 inches but not less than required to meet finish grades after natural settlement. Do not spread if soil or subgrade is frozen, muddy, or excessively wet.
 - 1. Lifts: Apply planting soil in lifts not exceeding 12 inches in loose depth for material compacted by compaction equipment, and not more than 6 inches in loose depth for material compacted by hand-operated tampers.
- D. Compaction: Compact each lift of planting soil to 75 percent of maximum Standard Proctor density according to ASTM D698.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.5 BLENDING PLANTING SOIL IN PLACE

- A. General: Mix amendments with in-place, unamended soil to produce required planting soil. Do not apply materials or till if existing soil or subgrade is frozen, muddy, or excessively wet.
- B. Preparation: Till unamended, existing soil in planting areas to a minimum depth of 18 inches. Remove stones larger than 1-1/2 inches in any dimension and sticks, roots, rubbish, and other extraneous matter and legally dispose of them off Owner's property.
- C. Mixing: Apply soil amendments and fertilizer, if required, evenly on surface, and thoroughly blend them into full depth of unamended, in-place soil to produce planting soil.
 - 1. Mix lime and potassium with dry soil before mixing fertilizer.
 - 2. Mix fertilizer with planting soil no more than seven days before planting.
- D. Compaction: Compact blended planting soil to 75 percent of maximum Standard Proctor density according to ASTM D698.
- E. Finish Grading: Grade planting soil to a smooth, uniform surface plane with loose, uniformly fine texture. Roll and rake, remove ridges, and fill depressions to meet finish grades.

3.6 FIELD QUALITY CONTROL

- A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

- B. Perform the following tests:
 - 1. Compaction: Test planting-soil compaction after placing each lift and at completion using a densitometer or soil-compaction meter calibrated to a reference test value based on laboratory testing according to ASTM D698. Space tests at no less than one for each 1000 sq. ft. of in-place soil or part thereof.
- C. Soil will be considered defective if it does not pass tests.
- D. Prepare test reports.
- E. Label each sample and test report with the date, location keyed to a site plan or other location system, visible conditions when and where sample was taken, and sampling depth.

3.7 PROTECTION

- A. Protection Zone: Identify protection zones according to Section 015639 "Temporary Tree and Plant Protection."
- B. Protect areas of in-place soil from additional compaction, disturbance, and contamination. Prohibit the following practices within these areas except as required to perform planting operations:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Vehicle traffic.
 - 4. Foot traffic.
 - 5. Erection of sheds or structures.
 - 6. Impoundment of water.
 - 7. Excavation or other digging unless otherwise indicated.
- C. If planting soil or subgrade is overcompacted, disturbed, or contaminated by foreign or deleterious materials or liquids, remove the planting soil and contamination; restore the subgrade as directed by Designer and replace contaminated planting soil with new planting soil.

3.8 CLEANING

- A. Protect areas adjacent to planting-soil preparation and placement areas from contamination. Keep adjacent paving and construction clean and work area in an orderly condition.
- B. Remove surplus soil and waste material including excess subsoil, unsuitable materials, trash, and debris and legally dispose of them off Owner's property unless otherwise indicated.
 - 1. Dispose of excess subsoil and unsuitable materials on-site where directed by Owner.

END OF SECTION 329113

SECTION 329119 - LANDSCAPE GRADING

PART 1 GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

- 1. Stripping, stockpiling, and redistribution of topsoil, rough grading, rock removal, and excavation of the site.
- 2. Final grade topsoil for finish landscaping shown on grading plans.

B. Related Sections:

- 1. Section 312000 "Earth Moving"
- 2. Section 329113 "Soil Preparation"
- 3. Section 329200 "Turf and Grasses"
- 4. Section 329300 "Plants"

C. Existing Conditions:

- 1. Contractor shall accept actual conditions at the project site and do work specified without additional compensation for possible variation from grades and conditions shown, whether surface or subsurface. All grading work shall be unclassified except for rock removal as described herein.

D. Protection:

- 1. Benchmarks and Monuments: Maintain carefully all benchmarks, monuments and other reference points. If disturbed or destroyed, replace as directed. If found at variance with the drawings, notify the Project Coordinator before proceeding to lay out work.
- 2. Protection of Existing Work Remaining: All existing curbs, sidewalks, driveways and paving damaged in performance of this work shall be restored without additional cost to the Owner in the manner prescribed by authorities having jurisdiction.
- 3. Tree Preservation and Protection: During all phases of earthwork and site grading, the Contractor shall comply with Section 015639 "Temporary Tree and Plant Protection".

PART 2 - PRODUCT

2.1 MATERIALS:

- A. Topsoil and Planting Mix: See Section 329113 "Soil Preparation".
- B. Non-woven Filter Fabric: Fabric for wrapping perforated pipe and washed stone shall be the non-woven filter type, Mirafi 140NL, Webtec NO-4, Linq 130 EX, or an approved equal.
- C. Surplus Material: Contractor shall remove unsuitable materials and surplus excavated materials from the site and legally dispose of it.

PART 3 - EXECUTION

3.1 INSPECTION:

- A. Verify trench backfilling has been inspected.
- B. Verify subsoil base has been contoured and compacted.
- C. Examine the areas and UPM under which earthwork and site grading is to be performed and notify the Designer in writing of conditions detrimental to the proper and timely completion of the work. Do not proceed with the work until unsatisfactory conditions have been corrected in an acceptable manner.
- D. Testing:
 - 1. Laboratory: The Contractor shall employ services of a testing laboratory to perform tests required under this section.
 - 2. Quality Control Testing During Construction: It is the responsibility of the Contractor to notify the Designer at appropriate times when Testing is required. Field density tests shall be performed in accordance with ASTM D-698.
 - 3. Density tests will be provided to Designer for areas compacted during construction before proceeding with soil work.

3.2 SUBSOIL PREPARATION:

- A. Eliminate uneven areas and low spots.
- B. Remove debris, roots, branches, and stones in excess of 1/2 inch (13 mm) in size. Remove subsoil contaminated with petroleum products.
- C. Scarify subgrade to depth of 3 inches (75 mm), where topsoil is to be placed. Scarify areas where equipment used for hauling and spreading topsoil has compacted subsoil.

3.3 SOIL PREPARATION:

- A. Soils for all landscaped areas will conform to Section 329113 "Soil Preparation" for all soil types, either topsoil or planting mix.
- B. Soil Test: A sample of the proposed topsoil or planting mix shall be submitted to the Designer 30 calendar days prior to installation and be approved prior to delivery to the site. Organic matter will be defined as organic/humus such as sawdust or leaf-mold that has completed the decomposition process.
- C. Soil preparations for planting areas are divided into categories depending on the situation. Only Type 2 and Type 3 are applicable.
 - 1. Type 2
 - a. The "Type 2" planting bed preparation is intended for areas in which the existing soil is to be removed to a depth of 18" and replaced with soil meeting the plant mix specification. This preparation also includes the tilling, loosening, sub-soiling of the material from 18" to 36" deep in order to provide aeration and lessen the compaction. Backfill materials/soils fit into this category and must be removed/replaced.
 - b. Existing soil shall be removed and disposed of in accordance with the contract provisions. The existing layer of soil between 18" and 36" deep shall be tilled in place and inspected by Designer prior to plant mix/soil being added to reach final grade.
 - c. The contractor shall install a sufficient quantity of approved plant mix to achieve the desired/specified grade. Soil shall be added in an amount sufficient to account for natural consolidation. Unless otherwise specified, the plant bed shall be graded as follows:
 - i. Plant beds in turf areas or around buildings – 6" above surrounding grade at center of bed, 2" above grade at edge of bed.
 - d. All planting beds and areas to be mulched shall have a 4" V-cut trench installed at the perimeter of the planting bed and adjacent to concrete walks, curbing, and grassed areas. The V-cut trench shall form the bed line edge. Trench depth and width shall be consistent and uniform throughout the installation.
 - e. All work shall be achieved from the sides of the planting bed areas. The contractor shall not allow equipment to operate on the loosened soil or plant mix.
 - 2. Type 3
 - a. The "Type 3" planting is intended for individual tree and individual/group Shrub planting where no soil replacement is required unless specified by the Designer. Type 3 planting is applicable to landscape to be installed at building edges. The tree and shrub planting procedures, including preparation of backfill and planting hole are found under Section 329300 "Plants".

3.4 PLACING TOPSOIL:

- A. Place topsoil in areas to be seeded or sodded and planted, to thickness as scheduled (Paragraph 3.8).
- B. Use topsoil in relatively dry state. Place during dry weather.
- C. Fine grade topsoil eliminating rough and low areas. Maintain levels, profiles, and contours of subgrade.
- D. Remove roots, weeds, and foreign material while spreading.
- E. Manually spread topsoil close to building to prevent damage.
- F. Lightly compact placed topsoil.
- G. Leave site clean and raked, ready to receive seeding or sodding and landscape planting.

3.5 TOLERANCES:

- A. Top of Topsoil: Plus or minus 1/2 inch (6 mm).

3.6 DRAINAGE:

- A. Subsurface drainage shall be installed as indicated in the plans and be tied into the existing storm drain system. A 4" perforated drain pipe shall be installed in the bottom of the planting area. Drain pipe shall be laid in the specified non-woven geotextile fabric, then covered with a minimum 6" of #57 washed stone, then wrapped with the specified non-woven geotextile fabric. Special care shall be exercised when filling planting area with soil so as not to crush or damage the drainage system.

3.7 PROTECTION:

- A. Protect landscaping and other features remaining as final work.
- B. Protect existing structures, walls, sidewalks, and paving.

3.8 SCHEDULE OF TOPSOIL DEPTHS:

- A. The following paragraphs identify compacted topsoil thickness for various locations.
 - 1. Perennial Planting Beds: Minimum 12 inches
 - 2. Native Plants and Grass Areas: Minimum 12 inches.
 - 3. Shrub Beds: Minimum 18 inches.
 - 4. Turf seeded and sodded Areas: Minimum 6 inches
 - 5. Ground Cover: Minimum 6 inches.

END OF SECTION 329119

SECTION 329200 - TURF AND GRASSES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. Sodding.
 - 2. Erosion-control materials.
- B. Related Sections:
 - 1. Section 329113 "Soil Preparation"
 - 2. Section 329119 "Landscape Grading"
 - 3. Section 329300 "Plants" for trees, shrubs, ground covers, and other plants as well as border edgings and mow strips.

1.3 DEFINITIONS

- A. Finish Grade: Elevation of finished surface of planting soil.
- B. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant.
- C. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- D. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" and drawing designations for planting soils.
- E. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.

1.5 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape Installer.
- B. Certification of Sod: Certification of each seed mixture for turfgrass sod. Include identification of source and name and telephone number of supplier.
- C. Product Certificates: For fertilizers, from manufacturer.
- D. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.
- E. Soil Analysis: Submit complete results of analysis, identifying required soil amendments, and amendment rates and procedures.
- F. Planting Schedule: Submit proposed planting schedule, indicating dates for installation and completion of lawn work. Once accepted, revise schedule only as approved in writing by the Owner's Representative, after documentation of reasons for delays.

1.6 CLOSEOUT SUBMITTALS

- A. Maintenance Instructions: Prior to expiration of Contractor's Maintenance Period, submit instructions recommending procedures to be followed by OWNER for maintenance of lawns for one full year following expiration of Contractor's Maintenance Period. Meet with the OWNER and/or their representatives, to review instructions and to assure adequate understanding for OWNER to carry out instructions.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful turf establishment.
 - 1. Professional Membership: Installer shall be a member in good standing of either the National Association of Landscape Professionals or AmericanHort.
 - 2. Experience: Five years' experience in turf installation in addition to requirements in Section 014000 "Quality Requirements".
 - 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.
 - 4. Personnel Certifications: Installer's field supervisor shall have certification in one of the following categories from the National Association of Landscape Professionals:
 - a. Landscape Industry Certified Technician - Exterior.
 - b. Landscape Industry Certified Lawn Care Manager.
 - c. Landscape Industry Certified Lawn Care Technician.

5. Pesticide Applicator: State licensed, commercial.
- B. Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work in this section.
- C. Comply with all regulations applicable to landscape materials.
- D. Soil Analysis: Provide and pay for the services of an approved, independent testing agency to perform an analysis of soil to be used. Analysis shall include a comprehensive description of soil, and a listing of types and quantities of soil amendments required for the establishment, growth and health of lawns. The number of samples required shall be a minimum of two samples per acre of lawn area, unless additional samples are recommended by testing agency.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws, as applicable.
- B. Sod: Harvest, deliver, store, and handle sod according to requirements in "Specifications for Turfgrass Sod Materials" and "Specifications for Turfgrass Sod Transplanting and Installation" sections in TPI's "Guideline Specifications to Turfgrass Sodding." Deliver sod within 24 hours of harvesting and in time for planting promptly. Protect sod from breakage and drying.
- C. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Accompany each delivery of bulk materials with appropriate certificates.

1.9 FIELD CONDITIONS

- A. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with initial maintenance periods to provide required maintenance from date of Substantial Completion.
 1. Spring Planting: April 15th – May 30th.
 2. Fall Planting: September 23rd – December 30th.
- B. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions.

- C. Utilities: Locate and avoid damage to all underground utilities; perform work in a manner which will avoid damage. Utilities not necessarily shown on Drawings.
- D. Maintain grade stakes set by others until removal is mutually agreed upon by parties concerned.
- E. When conditions detrimental to lawn establishment, growth and maintenance are encountered, such as rubble, adverse drainage conditions, or obstructions, notify Owner's Representative for directions before planting.
- F. Sodding shall only be permitted after irrigation system is installed and operating properly.

PART 2 - PRODUCTS

2.1 TURFGRASS SOD

- A. Turfgrass Sod: Certified Number 1 Quality/Premium, including limitations on thatch, weeds, diseases, nematodes, and insects, complying with "Specifications for Turfgrass Sod Materials" in TPI's "Guideline Specifications to Turfgrass Sodding." Furnish viable sod of uniform density, color, and texture that is strongly rooted and capable of vigorous growth and development when planted.
- B. Sod shall be delivered machine cut to a uniform thickness of $\frac{3}{4}$ " to $1\frac{1}{2}$ ", excluding top growth and thatch. Length and width shall be the supplier's standard, with a maximum allowable deviation of 5%. Torn, uneven, or desiccated pads or edges shall not be acceptable.
- C. Standard size sections of sod shall be capable of supporting their own weight and shape when suspended vertically.
- D. Turfgrass Species, Warm-Season Grass: 419 Bermudagrass (*Cynodon dactylon*).
- E. Provide sod composed of species specified, free of weeds and other extraneous grass types.

2.2 FERTILIZERS

- A. Commercial Fertilizer: Commercial-grade complete fertilizer of neutral character, consisting of fast- and slow-release nitrogen, 50 percent derived from natural organic sources of urea formaldehyde, phosphorous, and potassium in the following composition:
 - 1. Composition:
 - a. 1 lb/1000 sq. ft. of actual nitrogen, 4 percent phosphorous, and 2 percent potassium, by weight.
 - b. Nitrogen, phosphorous, and potassium in amounts recommended in soil reports from a qualified soil-testing laboratory.

2.3 MULCHES

- A. Straw Mulch: Provide air-dry, clean, mildew- and seed-free, salt hay or threshed straw of wheat, rye, oats, or barley.
- B. Compost Mulch: Well-composted, stable, and weed-free organic matter, pH range of 5.5 to 8; moisture content 35 to 55 percent by weight; 100 percent passing through 1-inch sieve; soluble salt content of 2 to 5 decisiemens/m; not exceeding 0.5 percent inert contaminants and free of substances toxic to plantings; and as follows:
 - 1. Organic Matter Content: 50 to 60 percent of dry weight.
 - 2. Feedstock: Agricultural, food, or industrial residuals; biosolids; yard trimmings; or source-separated or compostable mixed solid waste.

2.4 PESTICIDES

- A. General: Pesticide, registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.
- B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.5 EROSION-CONTROL MATERIALS

- A. Erosion-Control Blankets: Biodegradable wood excelsior, straw, or coconut-fiber mat enclosed in a photodegradable plastic mesh. Include manufacturer's recommended steel wire staples, 6 inches long.
- B. Erosion-Control Fiber Mesh: Biodegradable burlap or spun-coir mesh, a minimum of 0.92 lb/sq. yd. with 50 to 65 percent open area. Include manufacturer's recommended steel wire staples, 6 inches long.
- C. Erosion-Control Mats: Cellular, nonbiodegradable slope-stabilization mats designed to isolate and contain small areas of soil over steeply sloped surface, of 3-inch nominal mat thickness. Include manufacturer's recommended anchorage system for slope conditions.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to be planted for compliance with requirements and other conditions affecting installation and performance of the Work.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 - 3. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.
- C. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Designer and replace with new planting soil.

3.2 PREPARATION

- A. Protect structures; utilities; sidewalks; pavements; and other facilities, trees, shrubs, and plantings from damage caused by planting operations.
 - 1. Protect grade stakes set by others until directed to remove them.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.

3.3 TURF AREA PREPARATION

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."
- B. Placing Planting Soil: Place and mix planting soil in place over exposed subgrade.
 - 1. Reduce elevation of planting soil to allow for soil thickness of sod.
- C. Moistening prepared area before planting if soil is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.
- D. Before planting, obtain Designer's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.

3.4 PREPARATION FOR EROSION-CONTROL MATERIALS

- A. Prepare area as specified in "Turf Area Preparation" Article.
- B. For erosion-control mats, install planting soil in two lifts, with second lift equal to thickness of erosion-control mats. Install erosion-control mat and fasten as recommended by material manufacturer.
- C. Fill cells of erosion-control mat with planting soil and compact before planting.
- D. For erosion-control blanket or mesh, install from top of slope, working downward, and as recommended by material manufacturer for site conditions. Fasten as recommended by material manufacturer.
- E. Moisten prepared area before planting if surface is dry. Water thoroughly and allow surface to dry before planting. Do not create muddy soil.

3.5 SODDING

- A. Sodding shall not be done when the ground is frozen, snow covered, saturated, excessively dry, or in any other condition which would make establishment and survival of sod reasonably unlikely.
- B. Prior to sod bed preparation, soil shall be in a loose, smooth, friable condition, free from stones over 1-½" in any dimension, sticks, roots, construction debris, and other extraneous matter. If soil has become crusty, hardened or eroded since being spread, it shall be a part of this work to restore the soil to the loose, smooth condition described above.
- C. Prior to preparation of previously undistributed areas, completely remove existing vegetation and debris, and dispose of such material off-site; do not turn under vegetation into soil being prepared for sod bed. Loosen existing grade to a depth of 4"; remove all debris which surfaces.
- D. Spread fertilizer at the rate of 16 lbs per 1000 sq. ft. or as otherwise recommended by the soil test report for the specified turf species. Add pH balancing agents at rate recommended by soil test report to achieve a pH of 5.5 to 6.5 for Centipede grass, 6.5 to 7.0 for Bermuda grass, 6.5 to 7.5 for St. Augustine grass and 6.0 to 7.0 for Zoysia grass. Add peat and other additives as recommended by the soil test report. Blend additives thoroughly into upper 4" of soil. Remove any rock or other debris which may surface. Till areas until soil is loose and friable and all soil amendments are uniformly distributed.
- E. Work areas to a smooth even surface free from surface irregularities, ridges or depressions. Prepared areas shall meet required finish grade elevations allowing for sod thickness, and shall have positive drainage.
- F. Moisten prepared areas if soil is dry. Water thoroughly, and then allow surface moisture to evaporate. Do not create muddy soil conditions; do not saturate soil.
- G. Lay sod within 24 hours of harvesting. Do not lay sod if dormant or if ground is frozen or muddy.

- H. The first row of sod shall be laid in a straight line with subsequent rows placed parallel to and butting tightly against each other. Stagger strips to offset joints in adjacent courses. Care shall be taken to ensure that sod is not stretched or overlapped and that all joints are butted tight. On slopes, sod shall be laid parallel to the contour.
- I. Avoid damage to soil or sod during installation. Tamp and roll lightly to ensure contact with soil, eliminate air pockets, and form a smooth surface. Work sifted soil or fine sand into minor cracks between pieces of sod; remove excess to avoid smothering sod and adjacent grass.
 - 1. Lay sod across slopes exceeding 1:3.
 - 2. Anchor sod on slopes exceeding 1:6 with wood pegs or steel staples spaced as recommended by sod manufacturer but not less than two anchors per sod strip to prevent slippage.
- J. Immediately after laying and firming the sod, irrigate to a depth of 4 inches below the underside of the strips.
- K. During the first seven days after installation, maintain a continuous moist soil depth of at least 4 inches. After that period, water as necessary to maintain moist root zone.

3.6 TURF RENOVATION

- A. Renovate turf damaged by Contractor's operations, such as storage of materials or equipment and movement of vehicles.
 - 1. Reestablish turf where settlement or washouts occur or where minor regrading is required.
 - 2. Install new planting soil as required.
- B. Remove sod and vegetation from diseased or unsatisfactory turf areas; do not bury in soil.
- C. Remove topsoil containing foreign materials, such as oil drippings, fuel spills, stones, gravel, and other construction materials resulting from Contractor's operations, and replace with new planting soil.
- D. Mow, dethatch, core aerate, and rake existing turf.
- E. Remove weeds before sodding. Where weeds are extensive, apply selective herbicides as required. Do not use pre-emergence herbicides.
- F. Remove waste and foreign materials, including weeds, soil cores, grass, vegetation, and turf, and legally dispose of them off Owner's property.
- G. Till stripped, bare, and compacted areas thoroughly to a soil depth of 6 inches.
- H. Apply soil amendments and initial fertilizer required for establishing new turf and mix thoroughly into top 4 inches of existing soil. Install new planting soil to fill low spots and meet finish grades.

1. Soil Amendment(s): according to requirements of the soils preparation and required soils testing.
 2. Initial Fertilizer: Slow-release fertilizer applied according to manufacturer's recommendations.
- I. Apply sod as required for new turf.
 - J. Water newly planted areas and keep moist until new turf is established.

3.7 TURF MAINTENANCE

- A. General: Maintain and establish turf by watering, fertilizing, weeding, mowing, trimming, replanting, and performing other operations as required to establish healthy, viable turf. Roll, regrade, and replant bare or eroded areas and remulch to produce a uniformly smooth turf. Provide materials and installation the same as those used in the original installation.
 1. Fill in as necessary soil subsidence that may occur because of settling or other processes. Replace materials and turf damaged or lost in areas of subsidence.
 2. In areas where mulch has been disturbed by wind or maintenance operations, add new mulch and anchor as required to prevent displacement.
 3. Apply treatments as required to keep turf and soil free of pests and pathogens or disease. Use integrated pest management practices whenever possible to minimize the use of pesticides and reduce hazards.
- B. Watering: Install and maintain temporary piping, hoses, and turf-watering equipment to convey water from sources and to keep turf uniformly moist to a depth of 4 inches.
 1. Schedule watering to prevent wilting, puddling, erosion, and displacement of mulch. Lay out temporary watering system to avoid walking over muddy or newly planted areas.
 2. Water turf with fine spray at a minimum rate of 1 inch per week unless rainfall precipitation is adequate.
- C. Mow turf as soon as top growth is tall enough to cut. For sod, the first mowing shall not be attempted until the sod is firmly rooted. Repeat mowing to maintain specified height without cutting more than one-third of grass height. Remove no more than one-third of grass-leaf growth in initial or subsequent mowings. Do not delay mowing until grass blades bend over and become matted. Do not mow when grass is wet. Schedule initial and subsequent mowings to maintain the following grass height:
 1. Mow bermudagrass to a height of 1/2 to 1 inch.
 2. Prior to cutting secured areas, drive peds flush with grade.
- D. Turf Postfertilization: Apply slow-release fertilizer after initial mowing and when grass is dry.
 1. Use fertilizer that provides actual nitrogen of at least 1 lb/1000 sq. ft. to turf area.

3.8 SATISFACTORY TURF

- A. Turf installations shall meet the following criteria as determined by Designer:
 - 1. Satisfactory Sodded Turf: At end of maintenance period, a healthy, well-rooted, even-colored, viable turf has been established, free of weeds, open joints, bare areas, and surface irregularities.
- B. Use specified materials to reestablish turf that does not comply with requirements, and continue maintenance until turf is satisfactory.

3.9 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents according to requirements of authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.10 CLEANUP AND PROTECTION

- A. Promptly remove soil and debris created by turf work from paved areas. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material, including excess subsoil, unsuitable soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Erect temporary fencing or barricades and warning signs as required to protect newly planted areas from traffic. Maintain fencing and barricades throughout initial maintenance period and remove after plantings are established.
- D. Remove nondegradable erosion-control measures after grass establishment period.

3.11 MAINTENANCE SERVICE

- A. Turf Maintenance Service: Provide full maintenance by skilled employees of landscape Installer. Maintain as required in "Turf Maintenance" Article. Begin maintenance immediately after each area is planted and continue until acceptable turf is established, but for not less than the following periods:
 - 1. Sodded Turf: 30 days from date of Substantial Completion.

END OF SECTION 329200

SECTION 329300 - PLANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

- 1. Plants.
- 2. Tree stabilization.

- B. Related Sections:

- 1. Section 015639 "Temporary Tree and Plant Protection" for protecting, trimming, pruning, repairing, and replacing existing trees to remain that interfere with, or are affected by, execution of the Work.
- 2. Section 311000 "Site Clearing" for protection of existing trees and plantings, topsoil stripping and stockpiling, and site clearing.
- 3. Section 329200 "Turf and Grasses" for turf (lawn) planting and erosion-control materials.

1.3 DEFINITIONS

- A. Backfill: The earth used to replace or the act of replacing earth in an excavation.
- B. Balled and Burlapped Stock: Plants dug with firm, natural balls of earth in which they were grown, with a ball size not less than diameter and depth recommended by ANSI Z60.1 for type and size of plant required; wrapped with burlap, tied, rigidly supported, and drum laced with twine with the root flare visible at the surface of the ball as recommended by ANSI Z60.1.
- C. Bare-Root Stock: Plants with a well-branched, fibrous-root system developed by transplanting or root pruning, with soil or growing medium removed, and with not less than the minimum root spread according to ANSI Z60.1 for type and size of plant required.
- D. Container-Grown Stock: Healthy, vigorous, well-rooted plants grown in a container, with a well-established root system reaching sides of container and maintaining a firm ball when removed from container. Container shall be rigid enough to hold ball shape and protect root mass during shipping and be sized according to ANSI Z60.1 for type and size of plant required.
- E. Finish Grade: Elevation of finished surface of planting soil.

- F. Pesticide: A substance or mixture intended for preventing, destroying, repelling, or mitigating a pest. Pesticides include insecticides, miticides, herbicides, fungicides, rodenticides, and molluscicides. They also include substances or mixtures intended for use as a plant regulator, defoliant, or desiccant. Some sources classify herbicides separately from pesticides.
- G. Pests: Living organisms that occur where they are not desired or that cause damage to plants, animals, or people. Pests include insects, mites, grubs, mollusks (snails and slugs), rodents (gophers, moles, and mice), unwanted plants (weeds), fungi, bacteria, and viruses.
- H. Planting Area: Areas to be planted.
- I. Planting Soil: Existing, on-site soil; imported soil; or manufactured soil that has been modified with soil amendments and perhaps fertilizers to produce a soil mixture best for plant growth. See Section 329113 "Soil Preparation" for drawing designations for planting soils.
- J. Plant; Plants; Plant Material: These terms refer to vegetation in general, including trees, shrubs, vines, ground covers, ornamental grasses, bulbs, corms, tubers, or herbaceous vegetation.
- K. Root Flare: Also called "trunk flare." The area at the base of the plant's stem or trunk where the stem or trunk broadens to form roots; the area of transition between the root system and the stem or trunk.
- L. Stem Girdling Roots: Roots that encircle the stems (trunks) of trees below the soil surface.
- M. Subgrade: The surface or elevation of subsoil remaining after excavation is complete, or the top surface of a fill or backfill before planting soil is placed.

1.4 COORDINATION

- A. Coordination with Turf Areas (Lawns): Plant trees, shrubs, and other plants after finish grades are established and before planting turf areas unless otherwise indicated.
 - 1. When planting trees, shrubs, and other plants after planting turf areas, protect turf areas, and promptly repair damage caused by planting operations.

1.5 PREINSTALLATION MEETINGS

- A. Preinstallation Conference: Conduct conference at Project site as part of the overall project pre-construction meeting.

1.6 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Plant Materials: Include quantities, sizes, quality, and sources for plant materials.

2. Plant Photographs: Include color photographs in digital format of each required species and size of plant material as it will be furnished to Project. Take photographs from an angle depicting true size and condition of the typical plant to be furnished. Include a scale rod or other measuring device in each photograph. For species where more than 20 plants are required, include a minimum of three photographs showing the average plant, the best quality plant, and the worst quality plant to be furnished. Identify each photograph with the full scientific name of the plant, plant size, and name of the growing nursery.

1.7 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For landscape Installer. Include list of similar projects completed by Installer demonstrating Installer's capabilities and experience. Include project names, addresses, and year completed, and include names and addresses of owners' contact persons.
- B. Product Certificates: For each type of manufactured product, from manufacturer, and complying with the following:
 1. Manufacturer's certified analysis of standard products.
 2. Analysis of other materials by a recognized laboratory made according to methods established by the Association of Official Analytical Chemists, where applicable.
- C. Pesticides and Herbicides: Product label and manufacturer's application instructions specific to Project.
- D. Sample Warranty: For special warranty.

1.8 CLOSEOUT SUBMITTALS

- A. Maintenance Data: Recommended procedures to be established by Owner for maintenance of plants during a calendar year. Submit before expiration of required maintenance periods.

1.9 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified landscape installer whose work has resulted in successful establishment of plants.
 1. Professional Membership: Installer shall be a member in good standing with the National Association of Landscape Professionals or AmericanHort.
 2. Experience: Five years' experience in landscape installation in addition to requirements in Section 014000 "Quality Requirements."
 3. Installer's Field Supervision: Require Installer to maintain an experienced full-time supervisor on Project site when work is in progress.

4. Personnel Certifications: Installer's field supervisor, personnel assigned to the Work shall have certification in one of the following categories from the National Association of Landscape Professionals:
 - a. Landscape Industry Certified Technician - Exterior.
 - b. Landscape Industry Certified Horticultural Technician.
5. Pesticide Applicator: State licensed, commercial.
- B. Provide quality, size, genus, species, and variety of plants indicated, complying with applicable requirements in ANSI Z60.1.
- C. Measurements: Measure according to ANSI Z60.1. Do not prune to obtain required sizes.
 1. Trees and Shrubs: Measure with branches and trunks or canes in their normal position. Take height measurements from or near the top of the root flare for field-grown stock and container-grown stock. Measure main body of tree or shrub for height and spread; do not measure branches or roots tip to tip. Take caliper measurements 6 inches the root flare for trees up to 4-inch caliper size, and 12 inches above the root flare for larger sizes.
 2. Other Plants: Measure with stems, petioles, and foliage in their normal position.
- D. Plant Material Observation: Designer may observe plant material either at place of growth or at site before planting for compliance with requirements for genus, species, variety, cultivar, size, and quality. Designer may also observe trees and shrubs further for size and condition of balls and root systems, pests, disease symptoms, injuries, and latent defects and may reject unsatisfactory or defective material at any time during progress of work. Remove rejected trees or shrubs immediately from Project site.
 1. Notify Designer of sources of planting materials seven days in advance of delivery to site.

1.10 DELIVERY, STORAGE, AND HANDLING

- A. Packaged Materials: Deliver packaged materials in original, unopened containers showing weight, certified analysis, name and address of manufacturer, and indication of compliance with state and Federal laws if applicable.
- B. Bulk Materials:
 1. Do not dump or store bulk materials near structures, utilities, walkways and pavements, or on existing turf areas or plants.
 2. Provide erosion-control measures to prevent erosion or displacement of bulk materials; discharge of soil-bearing water runoff; and airborne dust reaching adjacent properties, water conveyance systems, or walkways.
 3. Accompany each delivery of bulk materials with appropriate certificates.

- C. Do not prune trees and shrubs before delivery. Protect bark, branches, and root systems from sun scald, drying, wind burn, sweating, whipping, and other handling and tying damage. Do not bend or bind-tie trees or shrubs in such a manner as to destroy their natural shape. Provide protective covering of plants during shipping and delivery. Do not drop plants during delivery and handling.
- D. Handle planting stock by root ball.
- E. Apply antidesiccant to trees and shrubs using power spray to provide an adequate film over trunks (before wrapping), branches, stems, twigs, and foliage to protect during digging, handling, and transportation.
 - 1. If deciduous trees or shrubs are moved in full leaf, spray with antidesiccant at nursery before moving and again two weeks after planting.
- F. Wrap trees and shrubs with burlap fabric over trunks, branches, stems, twigs, and foliage to protect from wind and other damage during digging, handling, and transportation.
- G. Deliver plants after preparations for planting have been completed and install immediately. If planting is delayed more than six hours after delivery, set plants and trees in their appropriate aspect (sun, filtered sun, or shade), protect from weather and mechanical damage, and keep roots moist.
 - 1. Set balled stock on ground and cover ball with soil, peat moss, sawdust, or other acceptable material.
 - 2. Do not remove container-grown stock from containers before time of planting.
 - 3. Water root systems of plants stored on-site deeply and thoroughly with a fine-mist spray. Water as often as necessary to maintain root systems in a moist, but not overly wet condition.

1.11 FIELD CONDITIONS

- A. Field Measurements: Verify actual grade elevations, service and utility locations, irrigation system components, and dimensions of plantings and construction contiguous with new plantings by field measurements before proceeding with planting work.
- B. Planting Restrictions: Plant during one of the following periods. Coordinate planting periods with maintenance periods to provide required maintenance from date of Substantial Completion.
 - 1. Spring Planting: April 15th – May 30th.
 - 2. Fall Planting: September 23rd – December 30th.
- C. Weather Limitations: Proceed with planting only when existing and forecasted weather conditions permit planting to be performed when beneficial and optimum results may be obtained. Apply products during favorable weather conditions according to manufacturer's written instructions and warranty requirements.

1.12 WARRANTY

- A. Special Warranty: Installer agrees to repair or replace plantings and accessories that fail in materials, workmanship, or growth within specified warranty period.
1. Failures include, but are not limited to, the following:
 - a. Death and unsatisfactory growth, except for defects resulting from abuse, lack of adequate maintenance, or neglect by Owner.
 - b. Structural failures including plantings falling or blowing over.
 - c. Faulty performance of tree stabilization.
 - d. Deterioration of metals, metal finishes, and other materials beyond normal weathering.
 2. Warranty Periods: From date of Substantial Completion.
 - a. Trees, Shrubs, Vines, and Ornamental Grasses: 12 months.
 - b. Ground Covers, Biennials, Perennials, and Other Plants: 12 months.
 - c. Annuals: Three months.
 3. Include the following remedial actions as a minimum:
 - a. Immediately remove dead plants and replace unless required to plant in the succeeding planting season.
 - b. Replace plants that are more than 25 percent dead or in an unhealthy condition at end of warranty period.
 - c. A limit of one replacement of each plant is required except for losses or replacements due to failure to comply with requirements.
 - d. Provide extended warranty for period equal to original warranty period, for replaced plant material.

PART 2 - PRODUCTS

2.1 PLANT MATERIAL

- A. General: Furnish nursery-grown plants true to genus, species, variety, cultivar, stem form, shearing, and other features indicated in Plant List, Plant Schedule, or Plant Legend indicated on Drawings and complying with ANSI Z60.1; and with healthy root systems developed by transplanting or root pruning. Provide well-shaped, fully branched, healthy, vigorous stock, densely foliated when in leaf and free of disease, pests, eggs, larvae, and defects such as knots, sun scald, injuries, abrasions, and disfigurement.
1. Trees with damaged, crooked, or multiple leaders; tight vertical branches where bark is squeezed between two branches or between branch and trunk ("included bark"); crossing trunks; cut-off limbs more than 3/4 inch in diameter; or with stem girdling roots are unacceptable.

2. Collected Stock: Do not use plants harvested from the wild, from native stands, from an established landscape planting, or not grown in a nursery unless otherwise indicated.
- B. Provide plants of sizes, grades, and ball or container sizes complying with ANSI Z60.1 for types and form of plants required. Plants of a larger size may be used if acceptable to Designer, with a proportionate increase in size of roots or balls.
- C. Root-Ball Depth: Furnish trees and shrubs with root balls measured from top of root ball, which begins at root flare according to ANSI Z60.1. Root flare shall be visible before planting.
- D. Labeling: Label each plant of each variety, size, and caliper with a securely attached, waterproof tag bearing legible designation of common name and full scientific name, including genus and species. Include nomenclature for hybrid, variety, or cultivar, if applicable for the plant.
- E. If formal arrangements or consecutive order of plants is indicated on Drawings, select stock for uniform height and spread, and number the labels to assure symmetry in planting.
- F. Annuals and Biennials: Provide healthy, disease-free plants of species and variety shown or listed, with well-established root systems reaching to sides of the container to maintain a firm ball, but not with excessive root growth encircling the container. Provide only plants that are acclimated to outdoor conditions before delivery and that are in bud but not yet in bloom.

2.2 FERTILIZERS

- A. Planting Tablets: Tightly compressed chip-type, long-lasting, slow-release, commercial-grade planting fertilizer in tablet form. Tablets shall break down with soil bacteria, converting nutrients into a form that can be absorbed by plant roots.
 1. Size: 5-gram tablets.
 2. Nutrient Composition: 20 percent nitrogen, 10 percent phosphorous, and 5 percent potassium, by weight plus micronutrients.

2.3 MULCHES

- A. Organic Mulch: Free from deleterious materials and suitable as a top dressing of trees and shrubs, consisting of one of the following:
 1. Type: Shredded hardwood, Ground or shredded bark, Wood and bark chips, Pine straw, Pine needles, Peanut, pecan, and cocoa-bean shells.
 2. Size Range: 3 inches maximum, 1/2 inch minimum.
 3. Color: Natural. NO DYED MULCH PRODUCTS.

2.4 PESTICIDES

- A. General: Pesticide registered and approved by the EPA, acceptable to authorities having jurisdiction, and of type recommended by manufacturer for each specific problem and as required for Project conditions and application. Do not use restricted pesticides unless authorized in writing by authorities having jurisdiction.

- B. Pre-Emergent Herbicide (Selective and Nonselective): Effective for controlling the germination or growth of weeds within planted areas at the soil level directly below the mulch layer.
- C. Post-Emergent Herbicide (Selective and Nonselective): Effective for controlling weed growth that has already germinated.

2.5 TREE-STABILIZATION MATERIALS

- A. Trunk-Stabilization Materials:
 - 1. Upright and Guy Stakes: Rough-sawn, sound, new hardwood, free of knots, holes, cross grain, and other defects, 2-by-2-inch nominal by length indicated, pointed at one end.
 - 2. Wood Deadmen: Timbers measuring 8 inches in diameter and 48 inches long, treated with specified wood pressure-preservative treatment.
 - 3. Flexible Ties: Wide rubber or elastic bands or straps of length required to reach stakes or turnbuckles.
 - 4. Guys and Tie Wires: Are NOT permitted.
 - 5. Tree-Tie Webbing: UV-resistant polypropylene or nylon webbing with brass grommets.
 - 6. Guy Cables: Are NOT permitted.
 - 7. Flags: Standard surveyor's plastic flagging tape, white, 6 inches long.
 - 8. Proprietary Staking-and-Guying Devices: Proprietary stake or anchor and adjustable tie systems to secure each new planting by plant stem; sized as indicated and according to manufacturer's written recommendations.

2.6 MISCELLANEOUS PRODUCTS

- A. Wood Pressure-Preservative Treatment: AWWA U1, Use Category UC4a; acceptable to authorities having jurisdiction, and containing no arsenic or chromium.
- B. Antidesiccant: Water-insoluble emulsion, permeable moisture retarder, film forming, for trees and shrubs. Deliver in original, sealed, and fully labeled containers and mix according to manufacturer's written instructions.
- C. Burlap: Non-synthetic, biodegradable.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine areas to receive plants, with Installer present, for compliance with requirements and conditions affecting installation and performance of the Work.
 - 1. Verify that no foreign or deleterious material or liquid such as paint, paint washout, concrete slurry, concrete layers or chunks, cement, plaster, oils, gasoline, diesel fuel, paint thinner, turpentine, tar, roofing compound, or acid has been deposited in soil within a planting area.
 - 2. Verify that plants and vehicles loaded with plants can travel to planting locations with adequate overhead clearance.

3. Suspend planting operations during periods of excessive soil moisture until the moisture content reaches acceptable levels to attain the required results.
 4. Uniformly moisten excessively dry soil that is not workable or which is dusty.
- B. If contamination by foreign or deleterious material or liquid is present in soil within a planting area, remove the soil and contamination as directed by Designer and replace with new planting soil.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Protect structures, utilities, sidewalks, pavements, and other facilities and turf areas and existing plants from damage caused by planting operations.
- B. Install erosion-control measures to prevent erosion or displacement of soils and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways.
- C. Lay out individual tree and shrub locations and areas for multiple plantings. Stake locations, outline areas, adjust locations when requested, and obtain Designer's acceptance of layout before excavating or planting. Make minor adjustments as required.
- D. Lay out plants at locations directed by Designer. Stake locations of individual trees and shrubs and outline areas for multiple plantings.

3.3 PLANTING AREA ESTABLISHMENT

- A. General: Prepare planting area for soil placement and mix planting soil according to Section 329113 "Soil Preparation."
- B. Placing Planting Soil: Blend planting soil in place.
- C. Before planting, obtain Designer's acceptance of finish grading; restore planting areas if eroded or otherwise disturbed after finish grading.
- D. Application of Mycorrhizal Fungi: At time directed by Designer, broadcast dry product uniformly over prepared soil at application rate according to manufacturer's written recommendations.

3.4 EXCAVATION FOR TREES AND SHRUBS

- A. Planting Pits and Trenches: Excavate circular planting pits.
1. Excavate planting pits with sides sloping inward at a 45-degree angle. Excavations with vertical sides are unacceptable. Trim perimeter of bottom leaving center area of bottom raised slightly to support root ball and assist in drainage away from center. Do not further disturb base. Ensure that root ball will sit on undisturbed base soil to prevent settling. Scarify sides of planting pit smeared or smoothed during excavation.
 2. Excavate approximately three times as wide as ball diameter for all plant stock.

3. Excavate at least 12 inches wider than root spread and deep enough to accommodate vertical roots for bare-root stock.
 4. Do not excavate deeper than depth of the root ball, measured from the root flare to the bottom of the root ball.
 5. If area under the plant was initially dug too deep, add soil to raise it to the correct level and thoroughly tamp the added soil to prevent settling.
 6. Maintain angles of repose of adjacent materials to ensure stability. Do not excavate subgrades of adjacent paving, structures, hardscapes, or other new or existing improvements.
 7. Maintain supervision of excavations during working hours.
 8. Keep excavations covered or otherwise protected when unattended by Installer's personnel.
- B. Backfill Soil: Subsoil and topsoil removed from excavations may be used as backfill soil unless otherwise indicated.
- C. Obstructions: Notify Designer if unexpected rock or obstructions detrimental to trees or shrubs are encountered in excavations.
- D. Drainage: Notify Designer if subsoil conditions evidence unexpected water seepage or retention in tree or shrub planting pits.
- E. Fill excavations with water and allow to percolate away before positioning trees and shrubs.

3.5 TREE, SHRUB, AND VINE PLANTING

- A. Inspection: At time of planting, verify that root flare is visible at top of root ball according to ANSI Z60.1. If root flare is not visible, remove soil in a level manner from the root ball to where the top-most root emerges from the trunk. After soil removal to expose the root flare, verify that root ball still meets size requirements.
- B. Roots: Remove stem girdling roots and kinked roots. Remove injured roots by cutting cleanly; do not break.
- C. Balled and Burlapped Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
1. Backfill: use planting soil for backfill. For trees, use excavated soil for backfill.
 2. After placing some backfill around root ball to stabilize plant, carefully cut and remove burlap, rope, and wire baskets from tops of root balls and from sides, but do not remove from under root balls. Remove pallets, if any, before setting. Do not use planting stock if root ball is cracked or broken before or during planting operation.
 3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - a. Quantity: Two per plant or three for each caliper inch of tree.

5. Continue backfilling process. Water again after placing and tamping final layer of soil.
- D. Balled and Potted and Container-Grown Stock: Set each plant plumb and in center of planting pit or trench with root flare 1 inch above adjacent finish grades.
 1. Backfill: use planting soil for backfill. For trees, use excavated soil for backfill.
 2. Carefully remove root ball from container without damaging root ball or plant.
 3. Backfill around root ball in layers, tamping to settle soil and eliminate voids and air pockets. When planting pit is approximately one-half filled, water thoroughly before placing remainder of backfill. Repeat watering until no more water is absorbed.
 4. Place planting tablets equally distributed around each planting pit when pit is approximately one-half filled. Place tablets beside the root ball about 1 inch from root tips; do not place tablets in bottom of the hole.
 - a. Quantity: Two per plant or three for each caliper inch of tree.
5. Continue backfilling process. Water again after placing and tamping final layer of soil.
- E. Slopes: When planting on slopes, set the plant so the root flare on the uphill side is flush with the surrounding soil on the slope; the edge of the root ball on the downhill side will be above the surrounding soil. Apply enough soil to cover the downhill side of the root ball.

3.6 TREE, SHRUB, AND VINE PRUNING

- A. Remove only dead, dying, or broken branches. Do not prune for shape.
- B. Prune, thin, and shape trees, shrubs, and vines as directed by Designer.
- C. Prune, thin, and shape trees, shrubs, and vines according to standard professional horticultural and arboricultural practices. Unless otherwise indicated by Designer, do not cut tree leaders; remove only injured, dying, or dead branches from trees and shrubs; and prune to retain natural character.
- D. Do not apply pruning paint to wounds.

3.7 TREE STABILIZATION

- A. Trunk Stabilization by Upright Staking and Guying: Install trunk stabilization as follows unless otherwise indicated on Drawings. Stake and guy trees more than 14 feet in height and more than 3 inches in caliper unless otherwise indicated. NO WIRES TO STABILIZE TREES, USE FIBROUS OR WEBB GUYING MATERIAL.
 1. Site-Fabricated, Staking-and-Guying Method: Install no fewer than three guys spaced equally around tree.
 - a. Securely attach guys to stakes 30 inches long, driven to grade. Adjust spacing to avoid penetrating root balls or root masses.
 - b. For trees more than 6 inches, anchor guys to wood deadmen buried at least 36 inches below grade.

- c. Support trees with bands of flexible ties at contact points with tree trunk and reaching to turnbuckle. Allow enough slack to avoid rigid restraint of tree.
 - d. Support trees with fabric or webbing, connected to the brass grommets of tree-tie webbing at contact points with tree trunk and reaching to turnbuckle. Allow enough slack to avoid rigid restraint of tree.
 - e. Attach flags to each guy wire, 30 inches above finish grade.
 - f. Paint turnbuckles with luminescent white paint.
2. Proprietary Staking and Guying Device: Install staking and guying system sized and positioned as recommended by manufacturer unless otherwise indicated and according to manufacturer's written instructions.

3.8 GROUND COVER AND PLANT PLANTING

- A. Set out and space ground cover and plants other than trees, shrubs, and vines as indicated on Drawings in even rows with triangular spacing.
- B. Use planting soil for backfill.
- C. Dig holes large enough to allow spreading of roots.
- D. For rooted cutting plants supplied in flats, plant each in a manner that minimally disturbs the root system but to a depth not less than two nodes.
- E. Work soil around roots to eliminate air pockets and leave a slight saucer indentation around plants to hold water.
- F. Water thoroughly after planting, taking care not to cover plant crowns with wet soil.
- G. Protect plants from hot sun and wind; remove protection if plants show evidence of recovery from transplanting shock.

3.9 PLANTING AREA MULCHING

- A. Mulch backfilled surfaces of planting areas and other areas indicated.
 - 1. Trees and Treelike Shrubs in Turf Areas: Apply mulch ring of 3-inch average thickness, to cover the planting pit or trench. Do not place mulch within of trunks or stems.
 - 2. Organic Mulch in Planting Areas: Apply 3-inch average thickness of organic mulch extending 12 inches beyond edge of individual planting pit or trench and over whole surface of planting area, and finish level with adjacent finish grades. Do not place mulch within 3 inches of trunks or stems.

3.10 INSTALLATION OF EDGING

- A. Shovel-Cut Edging: Separate mulched areas from turf areas, curbs, and paving with a 45-degree, 4- to 6-inch deep, shovel-cut edge as indicated on Drawings.

3.11 PLANT MAINTENANCE

- A. Maintain plantings by pruning, cultivating, watering, weeding, fertilizing, mulching, restoring planting saucers, adjusting and repairing tree-stabilization devices, resetting to proper grades or vertical position, and performing other operations as required to establish healthy, viable plantings.
- B. Fill in, as necessary, soil subsidence that may occur because of settling or other processes. Replace mulch materials damaged or lost in areas of subsidence.
- C. Apply treatments as required to keep plant materials, planted areas, and soils free of pests and pathogens or disease. Use integrated pest management practices when possible, to minimize use of pesticides and reduce hazards. Treatments include physical controls such as hosing off foliage, mechanical controls such as traps, and biological control agents.

3.12 PESTICIDE APPLICATION

- A. Apply pesticides and other chemical products and biological control agents according to authorities having jurisdiction and manufacturer's written recommendations. Coordinate applications with Owner's operations and others in proximity to the Work. Notify Owner before each application is performed.
- B. Pre-Emergent Herbicides (Selective and Nonselective): Apply to tree, shrub, and ground-cover areas according to manufacturer's written recommendations. Do not apply to seeded areas.
- C. Post-Emergent Herbicides (Selective and Nonselective): Apply only as necessary to treat already-germinated weeds and according to manufacturer's written recommendations.

3.13 REPAIR AND REPLACEMENT

- A. General: Repair or replace existing or new trees and other plants that are damaged by construction operations, in a manner approved by Designer.
 - 1. Submit details of proposed pruning and repairs.
 - 2. Perform repairs of damaged trunks, branches, and roots within 24 hours, if approved.
 - 3. Replace trees and other plants that cannot be repaired and restored to full-growth status, as determined by Designer.
- B. Remove and replace trees that are more than 25 percent dead or in an unhealthy condition before the end of the corrections period or are damaged during construction operations that Designer determines are incapable of restoring to normal growth pattern.
 - 1. Provide new trees of same size as those being replaced for each tree of 6 inches or smaller in caliper size.
 - 2. Provide one new tree of 6-inch caliper size for each tree being replaced that measures more than 6 inches in caliper size.
 - 3. Species of Replacement Trees: Same species being replaced.

3.14 CLEANING AND PROTECTION

- A. During planting, keep adjacent paving and construction clean and work area in an orderly condition. Clean wheels of vehicles before leaving site to avoid tracking soil onto roads, walks, or other paved areas.
- B. Remove surplus soil and waste material including excess subsoil, unsuitable soil, trash, and debris and legally dispose of them off Owner's property.
- C. Protect plants from damage due to landscape operations and operations of other contractors and trades. Maintain protection during installation and maintenance periods. Treat, repair, or replace damaged plantings.
- D. After installation and before Substantial Completion remove nursery tags, nursery stakes, tie tape, labels, wire, burlap, and other debris from plant material, planting areas, and Project site.
- E. At time of Substantial Completion, verify that tree-watering devices are in good working order and leave them in place. Replace improperly functioning devices.

3.15 MAINTENANCE SERVICE

- A. Maintenance Service for Trees and Shrubs: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:
 - 1. Maintenance Period: 12 months from date of Substantial Completion.
- B. Maintenance Service for Ground Cover and Other Plants: Provide maintenance by skilled employees of landscape Installer. Maintain as required in "Plant Maintenance" Article. Begin maintenance immediately after plants are installed and continue until plantings are acceptably healthy and well established, but for not less than maintenance period below:
 - 1. Maintenance Period: Six months from date of Substantial Completion.

END OF SECTION 329300

SECTION 331415 - SITE WATER DISTRIBUTION PIPING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Water-distribution piping and related components outside the building for domestic water service. Terminate water-service piping with appropriate fitting for extension by Divisions 21 and 22.

B. Related Requirements:

1. Section 315000 "Excavation Support and Protection."

1.2 DEFINITIONS

- A. EPDM: Ethylene-propylene-diene terpolymer rubber.
- B. PA: Polyamide (nylon) plastic.
- C. PE: Polyethylene plastic.
- D. PP: Polypropylene plastic.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings:

1. Detail precast concrete vault assemblies and indicate dimensions, method of field assembly, and components.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: For piping and specialties including relation to other services in same area, drawn to scale. Show piping and specialty sizes and valves, meter and specialty locations, and elevations.

B. Field Quality-Control Submittals:

1. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For each type of product indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Preparation for Transport: Prepare piping, valves, and meters, to the following:
 - 1. Ensure that piping, valves, and meters, are dry and internally protected against rust and corrosion.
 - 2. Protect threaded ends and flange faces against damage.
 - 3. Set piping, valves, and meters in best position for handling and to prevent rattling.
- B. During Storage: Use precautions for piping, valves, and meters, according to the following:
 - 1. Do not remove end protectors unless necessary for inspection; then reinstall for storage.
 - 2. Protect from weather. Store indoors and maintain temperature higher than ambient dew point temperature. Support off the ground or pavement in watertight enclosures when outdoor storage is necessary.
- C. Handling: Use sling to handle products if size requires handling by crane or lift. Rig products to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.
- D. Deliver piping with factory-applied end caps. Maintain end caps through shipping, storage, and handling to prevent pipe-end damage and to prevent entrance of dirt, debris, and moisture.
- E. Protect stored piping from moisture and dirt. Elevate above grade. Do not exceed structural capacity of floor when storing inside.
- F. Protect flanges, fittings, and specialties from moisture and dirt.
- G. Store plastic piping protected from direct sunlight. Support to prevent sagging and bending.

1.7 PROJECT CONDITIONS

- A. Interruption of Existing Water-Distribution Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary water-distribution service in accordance with requirements indicated:
 - 1. Notify Owner no fewer than two days in advance of proposed interruption of service.
 - 2. Do not proceed with interruption of water-distribution service without Owner's written permission.

1.8 COORDINATION

- A. Coordinate connection to water main with utility company.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with requirements of utility company supplying water. Include tapping of water mains.
- B. Comply with standards of authorities having jurisdiction for domestic water-service piping, including materials, installation, testing, and disinfection.
- C. Piping materials to bear label, stamp, or other markings of specified testing agency.
- D. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
- E. Comply with ASTM F645 for selection, design, and installation of thermoplastic water piping.
- F. Comply with NFPA 24 for materials, installations, tests, flushing, and valve and hydrant supervision for fire-suppression water-service piping.
- G. All piping and appurtenances intended to convey or dispense water for human consumption are to comply with the U.S. Safe Drinking Water Act (SDWA), with requirements of the Authority Having Jurisdiction (AHJ), and with NSF 61/NSF 372 or are certified in compliance with NSF 61/NSF 372 by an ANSI-accredited third-party certification body, that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

2.2 PIPING MATERIALS

- A. Comply with requirements in "Piping Applications" Article for applications of pipe, tube, fitting materials, and joining methods for specific services, service locations, and service sizes.
- B. Potable-water piping and components comply with NSF 14, NSF 61, and NSF 372.
 - 1. match PE pipe dimensions and class.

2.3 PVC PIPE AND FITTINGS

- A. PVC, Schedule 40 Pipe: ASTM D1785.
 - 1. PVC, Schedule 40 Socket Fittings: ASTM D2466.

- B. PVC, Schedule 80 Pipe: ASTM D1785.
 - 1. PVC, Schedule 80 Socket Fittings: ASTM D2467.
 - 2. PVC, Schedule 80 Threaded Fittings: ASTM D2464.
- C. PVC Pipe: AWWA C900 UL 1285, Class 150 and Class 200, with bell end with gasket, and with spigot end.
 - 1. Comply with UL 1285 for fire-suppression water service.
 - 2. PVC Fabricated Fittings: AWWA C900, Class 150 and Class 200, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.
 - 3. PVC Molded Fittings: AWWA C907, Class 150, with bell-and-spigot or double-bell ends. Include elastomeric gasket in each bell.

2.4 PIPING JOINING MATERIALS

- A. Plastic Pipe-Flange Gasket, Bolts, and Nuts: Type and material recommended by piping system manufacturer unless otherwise indicated.

2.5 PIPING SPECIALTIES

- A. Transition Fittings: Manufactured fitting or coupling same size as, with pressure rating at least equal to and ends compatible with, piping to be joined.

2.6 GATE VALVES

- A. Gate Valves - AWWA, Cast Iron:
 - 1. Source Limitations: Obtain gate valves - AWWA, cast iron, from single manufacturer.
 - 2. 5Gate Valves - OS&Y, Rising Stem, Resilient Seated: Cast- or ductile-iron body and bonnet, with bronze or cast- or ductile-iron gate, resilient seats, and bronze stem.
 - a. Standard: AWWA C509 or AWWA C515.
 - b. Minimum Pressure Rating: 200 psig.
 - c. End Connections: Mechanical joint, flanged, threaded, or push on.
- B. Gate Valves - UL/FM Global, Cast Iron:
 - 1. Source Limitations: Obtain gate valves - UL/FM Global, cast iron, from single manufacturer.

2. Gate Valves - OS&Y, Rising Stem, Resilient Seated: Cast- or ductile-iron body and bonnet and bronze seating material.
 - a. Standards: AWWA C509 or AWWA C515, UL listed and FM Global approved.
 - b. Minimum Pressure Rating: 175 psig.
 - c. End Connections: Mechanical joint or flanged.
 - d. Interior Coating: Complying with AWWA C550.

2.7 GATE VALVE ACCESSORIES AND SPECIALTIES

- A. Tapping-Sleeve Assemblies: Sleeve and valve compatible with drilling machine.
 1. Source Limitations: Obtain tapping-sleeve assemblies from single manufacturer.
 2. Standard: MSS SP-60.
 3. Tapping Sleeve: Cast- or ductile-iron or stainless steel, two-piece bolted sleeve with flanged outlet for new branch connection. Include sleeve matching size and type of pipe material being tapped and with recessed flange for branch valve.
 4. Valve: AWWA, cast-iron, nonrising-stem, metal resilient-seated gate valve with one raised face flange mating tapping-sleeve flange.
- B. Valve Boxes: Comply with AWWA M44 for cast-iron valve boxes. Include top section, adjustable extension of length required for depth of burial of valve, plug with lettering "WATER," and bottom section with base that fits over valve and with a barrel approximately 5 inches (125 mm) in diameter.
 1. Operating Wrenches: Steel, tee-handle with one pointed end, stem of length to operate deepest buried valve, and socket matching valve operating nut.
- C. Indicator Posts: UL 789, FM Global approved, vertical-type, cast-iron body with operating wrench, extension rod, and adjustable cast-iron barrel of length required for depth of burial of valve.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Comply with excavating, trenching, and backfilling requirements in Section 312000 "Earth Moving."

3.2 PIPING APPLICATIONS

- A. Transition couplings and special fittings with pressure ratings at least equal to piping pressure rating may be used unless otherwise indicated.

- B. Do not use flanges or unions for underground piping.
- C. Flanges, unions, grooved-end-pipe couplings, and special fittings may be used, instead of joints indicated, on aboveground piping and piping in vaults.
- D. Underground water-service piping to be the following:
 - 1. PVC 1120 in accordance with AWWA C-900. Pipe jointing will be elastomeric joints only.
 - 2. Ductile-iron in accordance with AWWA Standard C-151 and shall have a cement-mortar lining of standard thickness in accordance with AWWA C-104. Push on joints in accordance with AWWA C-111.

3.3 VALVE APPLICATIONS

- A. General Application: Use mechanical-joint-end valves for NPS 3 (DN 80) and larger underground installation. Use threaded- or flanged-end valves for installation in vaults. Use UL/FM Global, nonrising-stem gate valves for installation with indicator posts. Use corporation valves and curb valves with ends compatible with piping, for NPS 2 (DN 50) and smaller installation.

3.4 PIPING SYSTEMS - COMMON REQUIREMENTS

- A. Comply with Section 330500 "Common Work Results for Utilities" for piping-system common requirements.
- B. Provide a continuous bare copper or aluminum tracer wire not less than 0.10 inch in diameter in sufficient length over each separate run of nonmetallic pipe.

3.5 INSTALLATION OF PIPING

- A. Water-Main Connection:
 - 1. Tap water main in accordance with requirements of water utility company and of size and in location indicated.
- B. Make connections NPS 2 and smaller with drilling machine according to the following:
 - 1. Install tapping sleeve and tapping valve in accordance with MSS SP-60.
 - 2. Install tapping sleeve on pipe to be tapped. Position flanged outlet for gate valve.
 - 3. Use tapping machine compatible with valve and tapping sleeve; cut hole in main. Remove tapping machine and connect water-service piping.
 - 4. Install gate valve onto tapping sleeve. Comply with MSS SP-60. Install valve with stem pointing up and with valve box.
- C. Install PVC, AWWA pipe in accordance with ASTM F645 and AWWA M23.

- D. Bury piping with depth of cover over top at least 36 inches, with top at least 12 inches below level of maximum frost penetration, and according to the following:
 - 1. Under Driveways: With at least 36 inches of cover over top.
 - 2. In Loose Gravelly Soil and Rock: With at least 12 inches of additional cover.
- E. Install piping by tunneling or jacking, or combination of both, under streets and other obstructions that cannot be disturbed.
- F. Sleeves are specified in Section 210517 "Sleeves and Sleeve Seals for Fire-Suppression Piping" and Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."

Mechanical sleeve seals are specified in Section 220517 "Sleeves and Sleeve Seals for Plumbing Piping."
- G. Install underground piping with restrained joints at horizontal and vertical changes in direction. Use restrained-joint piping, thrust blocks, anchors, tie-rods and clamps, and other supports.

3.6 JOINT CONSTRUCTION

- A. Comply with Section 330500 "Common Work Results for Utilities" for basic piping joint construction.
- B. Make pipe joints according to the following:
 - 1. PVC Piping Gasketed Joints: Use joining materials in accordance with AWWA C900. Construct joints with elastomeric seals and lubricant in accordance with ASTM D2774 or ASTM D3139 and pipe manufacturer's written instructions.

3.7 INSTALLATION OF VALVES

- A. AWWA Gate Valves: Comply with AWWA C600 and AWWA M44. Install each underground valve with stem pointing up and with valve box.
- B. UL-Listed or FM Global-Approved Gate Valves: Comply with NFPA 24. Install each underground valve and valves in vaults with stem pointing up and with vertical cast-iron indicator post.
- C. Comply with requirements for concrete piers in Section 033000 "Cast-in-Place Concrete" for support of valves and piping not direct buried.

3.8 CONNECTIONS

- A. See Section 330500 "Common Work Results for Utilities" for piping connections to valves and equipment.
- B. Connect water-distribution piping to existing water main. Use tapping sleeve and tapping valve.
- C. Ground equipment in accordance with Section 260526 "Grounding and Bonding for Electrical Systems."
- D. Connect wiring in accordance with Section 260519 "Low-Voltage Electrical Power Conductors and Cables."

3.9 FIELD QUALITY CONTROL

- A. Piping Tests: Conduct piping tests before joints are covered and after concrete thrust blocks have hardened sufficiently. Fill pipeline 24 hours before testing and apply test pressure to stabilize system. Use only potable water.
- B. Hydrostatic Tests: Test at not less than one-and-one-half times working pressure for two hours.
 - 1. Increase pressure in 50 psig increments and inspect each joint between increments. Hold at test pressure for one hour; decrease to 0 psig . Slowly increase again to test pressure and hold for one more hour. Maximum allowable leakage is 2 quarts per hour per 100 joints. Remake leaking joints with new materials and repeat test until leakage is within allowed limits.
- C. Prepare reports of testing activities.

3.10 IDENTIFICATION

- A. Install continuous underground detectable warning tape during backfilling of trench for underground water-distribution piping. Locate below finished grade, directly over piping. Underground warning tapes are specified in Section 312000 "Earth Moving."
- B. Permanently attach equipment nameplate or marker indicating plastic water-service piping, on main electrical meter panel. See Section 330500 "Common Work Results for Utilities" for identifying devices.

3.11 CLEANING

A. Clean and disinfect water-distribution piping as follows:

1. Purge new water-distribution piping systems and parts of existing systems that have been altered, extended, or repaired before use.
2. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in NFPA 24 for flushing of piping. Flush piping system with clean, potable water until dirty water does not appear at points of outlet.
3. Use purging and disinfecting procedure prescribed by authorities having jurisdiction or, if method is not prescribed by authorities having jurisdiction, use procedure described in AWWA C651 or do as follows:
 - a. Fill system or part of system with water/chlorine solution containing at least 50 ppm of chlorine; isolate and allow to stand for 24 hours.
 - b. Drain system or part of system of previous solution and refill with water/chlorine solution containing at least 200 ppm of chlorine; isolate and allow to stand for three hours.
 - c. After standing time, flush system with clean, potable water until no chlorine remains in water coming from system.
 - d. Submit water samples in sterile bottles to authorities having jurisdiction. Repeat procedure if biological examination shows evidence of contamination.

B. Prepare reports of purging and disinfecting activities.

END OF SECTION 331415

SECTION 334200 - STORMWATER CONVEYANCE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:
 - 1. PVC pipe and fittings.
 - 2. Concrete pipe and fittings.
 - 3. Cleanouts.
 - 4. Drains.
 - 5. Manholes.
 - 6. Stormwater inlets.
 - 7. Pipe outlets.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Shop Drawings:
 - 1. Manholes: Include plans, elevations, sections, details, frames, and covers.
 - 2. stormwater inlets. Include plans, elevations, sections, details, frames, covers, and grates.

1.4 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Show pipe sizes, locations, and elevations. Show other piping in same trench and clearances from storm drainage system piping. Indicate interface and spatial relationship between manholes, piping, and proximate structures.
- B. Profile Drawings: Show system piping in elevation. Draw profiles at horizontal scale of not less than 1 inch equals 50 feet and vertical scale of not less than 1 inch equals 5 feet. Indicate manholes and piping. Show types, sizes, materials, and elevations of other utilities crossing system piping.
- C. Product Certificates: For each type of cast-iron soil pipe and fitting, from manufacturer.
- D. Field quality-control reports.

1.5 QUALITY ASSURANCE

- A. Piping materials shall bear label, stamp, or other markings of specified testing agency.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Do not store plastic manholes, pipe, and fittings in direct sunlight.
- B. Protect pipe, pipe fittings, and seals from dirt and damage.
- C. Handle manholes in accordance with manufacturer's written rigging instructions.
- D. Handle stormwater inlets in accordance with manufacturer's written rigging instructions.

1.7 FIELD CONDITIONS

- A. Interruption of Existing Storm Drainage Service: Do not interrupt service to facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary service in accordance with requirements indicated:
 - 1. Notify Architect no fewer than two days in advance of proposed interruption of service.
 - 2. Do not proceed with interruption of service without Architect's written permission.

PART 2 - PRODUCTS

2.1 CONCRETE PIPE AND FITTINGS

- A. Source Limitations: Obtain concrete pipe and fittings from single manufacturer.
- B. Reinforced-Concrete Sewer Pipe and Fittings: ASTM C76 .
 - 1. Bell-and-spigot ends and gasketed joints with ASTM C443 , rubber gaskets sealant joints with ASTM C990 , bitumen or butyl-rubber sealant
 - 2. Class III, Wall A B C.
 - 3. Class IV, Wall A B C.

2.2 NONPRESSURE TRANSITION COUPLINGS

- A. Comply with ASTM C1173, elastomeric, sleeve-type, reducing or transition coupling, for joining underground nonpressure piping. Include ends of same sizes as piping to be joined, and corrosion-resistant-metal tension band and tightening mechanism on each end.
- B. Sleeve Materials:
 - 1. For Concrete Pipes: ASTM C443 , rubber.

C. Ring-Type, Flexible Couplings:

1. Source Limitations: Obtain ring-type, flexible couplings from single manufacturer.
2. Description: Elastomeric compression seal with dimensions to fit inside bell of larger pipe and for spigot of smaller pipe to fit inside ring.

2.3 DRAINS

A. Cast-Iron Area Drains:

1. Source Limitations: Obtain cast-iron area drains from single manufacturer.
2. Description: ASME A112.6.3 gray-iron round body with anchor flange and round[secured] grate. Include bottom outlet with inside caulk or spigot connection, of sizes indicated.
3. Top-Loading Classification(s): Medium Duty and Heavy Duty.

2.4 STORMWATER INLETS

- A. Combination Inlets: Made with vertical curb and horizontal gutter openings[, of materials and dimensions in accordance with utility standards]. Include heavy-duty frames and grates.
- B. Frames and Grates: Heavy duty [, in accordance with utility standards].

2.5 PIPE OUTLETS

- A. Riprap Basins: Broken, irregularly sized and shaped, graded stone in accordance with NSSGA's "Quarried Stone for Erosion and Sediment Control."
 1. Average Size: NSSGA No. R-3, screen opening 2 inches.
 2. Average Size: NSSGA No. R-4, screen opening 3 inches.
 3. Average Size: NSSGA No. R-5, screen opening 5 inches.
- B. Filter Stone: In accordance with NSSGA's "Quarried Stone for Erosion and Sediment Control," No. FS-2, No. 4 screen opening, average-size graded stone.
- C. Energy Dissipaters: In accordance with NSSGA's "Quarried Stone for Erosion and Sediment Control," No. A-1, 3-ton average weight armor stone, unless otherwise indicated.

PART 3 - EXECUTION

3.1 EARTHWORK

- A. Excavation, trenching, and backfilling are specified in Section 312000 "Earth Moving."

3.2 PIPING INSTALLATION

- A. General Locations and Arrangements: Drawing plans and details indicate general location and arrangement of underground storm drainage piping. Location and arrangement of piping layout take into account design considerations. Install piping as indicated, to extent practical. Where specific installation is not indicated, follow piping manufacturer's written instructions.
- B. Install piping beginning at low point, true to grades and alignment indicated with unbroken continuity of invert. Place bell ends of piping facing upstream. Install gaskets, seals, sleeves, and couplings in accordance with manufacturer's written instructions for use of lubricants, cements, and other installation requirements.
- C. Install manholes for changes in direction unless fittings are indicated. Use fittings for branch connections unless direct tap into existing sewer is indicated.
- D. Install proper size increasers, reducers, and couplings where different sizes or materials of pipes and fittings are connected. Reducing size of piping in direction of flow is prohibited.
- E. When installing pipe under streets or other obstructions that cannot be disturbed, use pipe-jacking process of microtunneling.
- F. Install gravity-flow, nonpressure drainage piping in accordance with the following:
 - 1. Install piping pitched down in direction of flow.
 - 2. Install piping NPS 6 and larger with restrained joints at tee fittings and at changes in direction. Use corrosion-resistant rods, pipe or fitting manufacturer's proprietary restraint system, or cast-in-place concrete supports or anchors.
 - 3. Install piping with 36 inch- minimum cover.
 - 4. Install PVC cellular-core piping in accordance with ASTM D2321 and ASTM F1668.
 - 5. Install reinforced-concrete sewer piping in accordance with ASTM C1479 and ACPA's "Concrete Pipe Installation Manual."

3.3 PIPE JOINT CONSTRUCTION

- A. Join gravity-flow, nonpressure drainage piping in accordance with the following:
 - 1. Join PVC cellular-core piping in accordance with ASTM D2321 and ASTM F891 for solvent-cemented joints.
 - 2. Join reinforced-concrete sewer piping in accordance with ACPA's "Concrete Pipe Installation Manual" for rubber-gasketed joints.
 - 3. Join dissimilar pipe materials with nonpressure-type flexible couplings.

3.4 BACKWATER VALVE INSTALLATION

- A. Install horizontal-type backwater valves in piping where indicated.

3.5 DRAIN INSTALLATION

- A. Install type of drains in locations indicated.
 - 1. Use Light-Duty, top-loading classification drains in earth or unpaved foot-traffic areas.
 - 2. Use Medium-Duty, top-loading classification drains in paved foot-traffic areas.
 - 3. Use Heavy-Duty, top-loading classification drains in vehicle-traffic service areas.
 - 4. Use Extra-Heavy-Duty, top-loading classification drains in roads.
- B. Embed drains in 4-inch- minimum concrete around bottom and sides.
- C. Fasten grates to drains if indicated.
- D. Set drain frames and covers with tops flush with pavement surface.

3.6 STORMWATER OUTLET INSTALLATION

- A. Construct riprap of broken stone, as indicated.
- B. Install outlets that spill onto grade, anchored with concrete, where indicated.
- C. Install outlets that spill onto grade, with flared end sections that match pipe, where indicated.
- D. Construct energy dissipaters at outlets, as indicated.

3.7 IDENTIFICATION

- A. Materials and their installation are specified in Section 312000 "Earth Moving." Arrange for installation of green warning tape directly over piping and at outside edge of underground structures.
 - 1. Use[warning tape or] detectable warning tape over ferrous piping.
 - 2. Use detectable warning tape over nonferrous piping and over edges of underground structures.

3.8 FIELD QUALITY CONTROL

- A. Inspect interior of piping to determine whether line displacement or other damage has occurred. Inspect after approximately 24 inches of backfill is in place, and again at completion of Project.
 - 1. Submit separate reports for each system inspection.
 - 2. Defects requiring correction include the following:
 - a. Alignment: Less than full diameter of inside of pipe is visible between structures.
 - b. Deflection: Flexible piping with deflection that prevents passage of ball or cylinder of size not less than 92.5 percent of piping diameter.

- c. Damage: Crushed, broken, cracked, or otherwise damaged piping.
 - d. Infiltration: Water leakage into piping.
 - e. Exfiltration: Water leakage from or around piping.
- 3. Replace defective piping using new materials, and repeat inspections until defects are within allowances specified.
- 4. Reinspect and repeat procedure until results are satisfactory.
- B. Test new piping systems, and parts of existing systems that have been altered, extended, or repaired, for leaks and defects.
 - 1. Do not enclose, cover, or put into service before inspection and approval.
 - 2. Test completed piping systems in accordance with requirements of authorities having jurisdiction.
 - 3. Schedule tests and inspections by authorities having jurisdiction with at least 24 hours' advance notice.
 - 4. Submit separate report for each test.
 - 5. Gravity-Flow Storm Drainage Piping: Test in accordance with requirements of authorities having jurisdiction, UNI-B-6, and the following:
 - a. Exception: Piping with soiltight joints unless required by authorities having jurisdiction.
 - b. Option: Test plastic piping in accordance with ASTM F1417.
 - 6. Force-Main Storm Drainage Piping: Perform hydrostatic test after thrust blocks, supports, and anchors have hardened. Test at pressure not less than 1-1/2 times the maximum system operating pressure, but not less than [150] <Insert number> psig (kPa).
 - a. Ductile-Iron Piping: Test in accordance with AWWA C600, "Hydraulic Testing" Section.
 - b. PVC Piping: Test in accordance with AWWA M23, "Testing and Maintenance" Chapter.
- C. Leaks and loss in test pressure constitute defects that must be repaired.
- D. Replace leaking piping using new materials, and repeat testing until leakage is within allowances specified.

3.9 CLEANING

- A. Clean interior of piping of dirt and superfluous materials. Flush with potable water. Flush with water.

END OF SECTION 334200

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Nathan Farber, Planner II

Date: November 6, 2023

Subject: Call Public Hearing for Petition #R23-10 - Commercial Communication Tower

EXPLAIN REQUEST:

Call a public hearing for Tuesday, January 2, 2024, at 6:00 p.m. at Huntersville Town Hall, 101 Huntersville-Concord Road, Huntersville, NC 28078, on Petition #R23-10 Commercial Communication Tower, a request by Berkley Group III, LLC to rezone parcels #019-10-116 and #019-10-113 from Neighborhood Residential district (NR) to Special Purpose - Conditional district (SP-CD) to allow a Commercial Communication Tower.

ACTION RECOMMENDED:

Call Public Hearing

FINANCIAL IMPLICATIONS:

NA

ATTACHMENTS:

None

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Nathan Farber, Planner II

Date: November 6, 2023

Subject: Call Public Hearing for Petition #TA23-06 - House Bill 488

EXPLAIN REQUEST:

Call a public hearing for Tuesday, January 2, 2024, at 6:30 p.m. at Huntersville Town Hall, 101 Huntersville-Concord Road, Huntersville, NC 28078, on Petition #TA23-06, a request by the Huntersville Planning Department to amend Zoning Ordinance Articles 3, 8 and 11 to comply with House Bill 488.

ACTION RECOMMENDED:

Call Public Hearing

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

None

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Patrick Patterson, Planner I

Date: November 6, 2023

Subject: Call Public Hearing for Petition #TA23-07

EXPLAIN REQUEST:

Call a public hearing for Tuesday, January, 2 2024 at 6:00 p.m. at Huntersville Town Hall, 101 Huntersville-Concord Road, Huntersville, NC 28078, on Petition #TA23-07, a request by the Huntersville Planning Department for a text amendment to the Zoning Ordinance to amend Article 12.2.1 and the definition of "Interconnected."

ACTION RECOMMENDED:

Call a public hearing

FINANCIAL IMPLICATIONS:

N/A

ATTACHMENTS:

None

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Street for Town Maintenance in Ardmore at Bryton Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the street listed below for maintenance, which is located in the Ardmore at Bryton Subdivision.

Street Name	From	To	Approx. Length
Ardmore Forest Rd	Bryton Ridge Pkw	End of Road	800-ft

ACTION RECOMMENDED:

Accept street for Town Maintenance

FINANCIAL IMPLICATIONS:

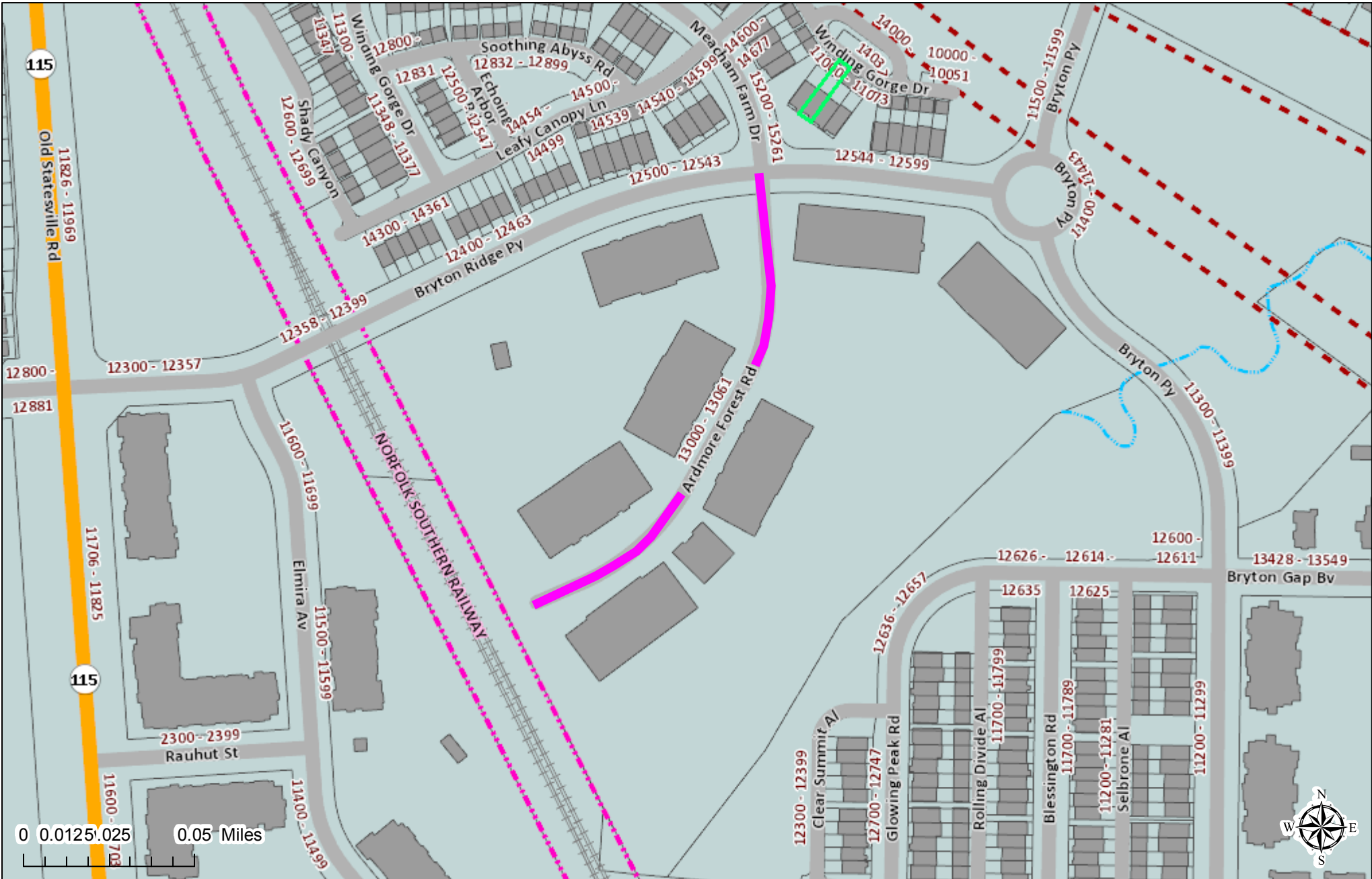
Powell Bill

ATTACHMENTS:

1. Ardmore at Bryton - Map

Ardmore at Bryton

Date Printed: 10/17/2023 7:30:19 AM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Street for Town Maintenance located in Barkley Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the street listed below for maintenance, which is located in the Barkley Subdivision.

Street Name	From	To	Approx. Length
Emily Magen Ct	Winding Ridge Rd	Cul-de-sac	410-ft

ACTION RECOMMENDED:

Accept Street for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

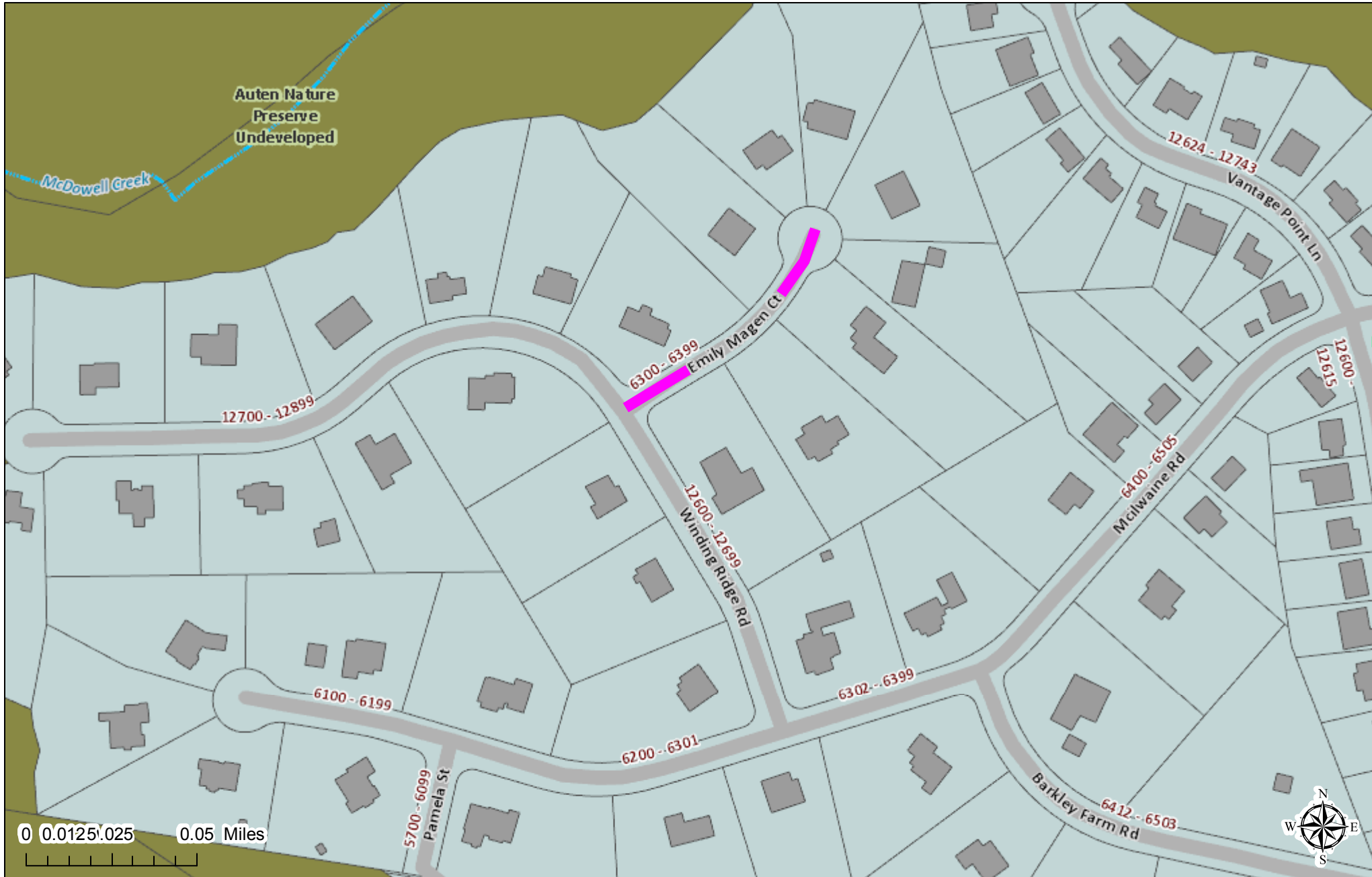
ATTACHMENTS:

1. Barkley Subdivision - Emily Magen Ct - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Barkley

Date Printed: 10/17/2023 10:25:15 AM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Streets for Town Maintenance located in the Norman Park Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in the Norman Park Subdivision.

Street Name	From	To	Approx. Length
Cowan Drive	Titan Ave	135-ft SW of Titan	135
Venus Lane	Titan Ave	135-ft SW of Titan	135
Malabar Rd	Titan Ave	135-ft SW of Titan	135
Titan Ave	Venus Lane	End of Road	315

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

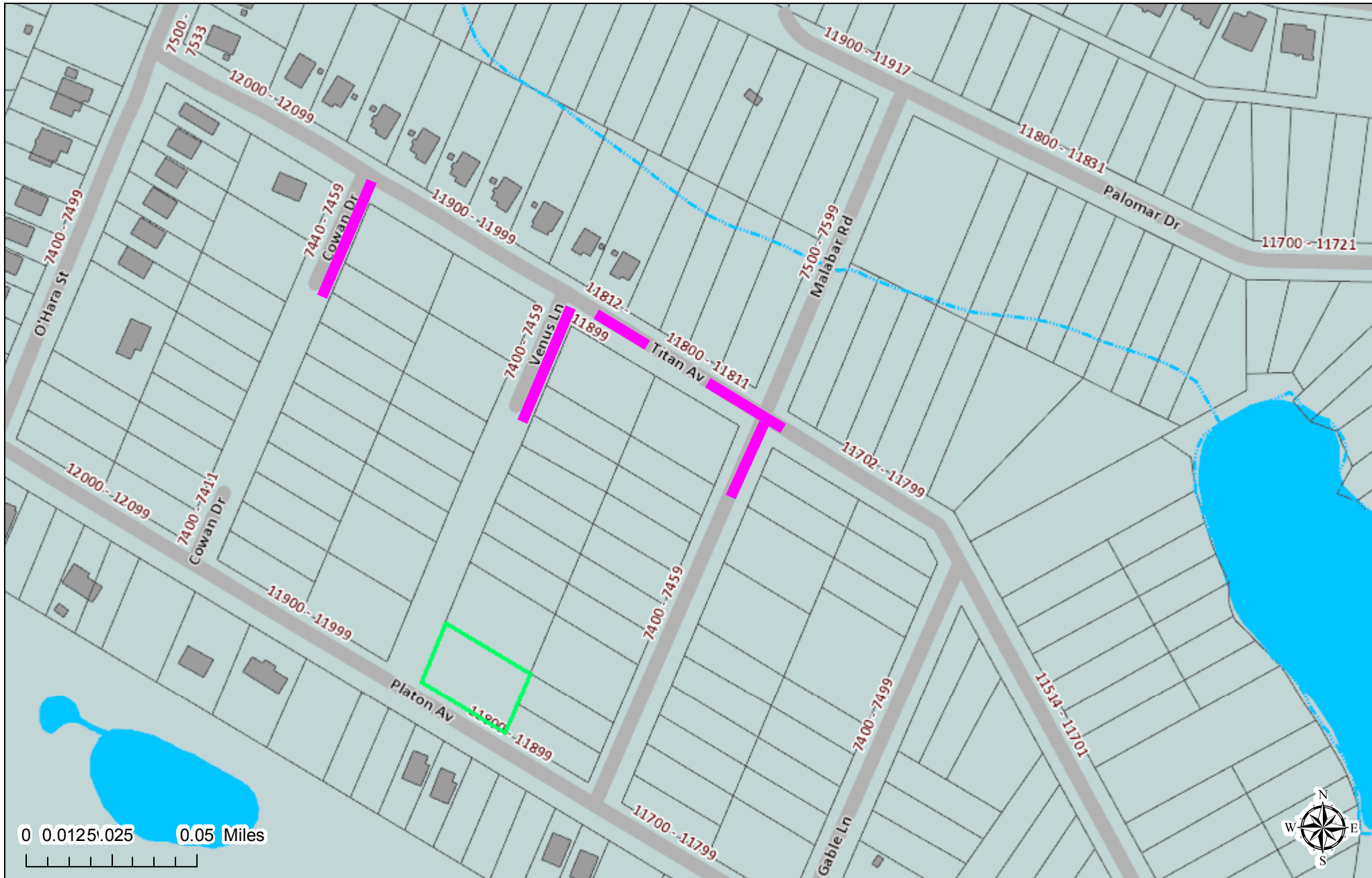
ATTACHMENTS:

1. Norman Park - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Norman Park

Date Printed: 8/31/2023 12:27:23 PM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Streets for Town Maintenance located in the Olmstead Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in the Olmstead Subdivision.

Street Name	From	To	Approx. Length
Long Common Pkwy	Eastfield Rd	Front Park Ct	4155-ft
Balcony Ridge Rd	Long Common Pkwy	332-ft N of Long Common Pkwy	330-ft
Front Park Circle	Long Common Pkwy	Long Common Pkwy	1550-ft
Leffert's house Place	Long Common Pkwy	Front Park Circle	910-ft
McGinnis Lane	Long Common Pkwy	321-ft E of Long Common Pkwy	320-ft
Fairsted Lane	Front Park Circle	Promenade Drive	1015-ft
Promenade Drive	Asbury Chaple Rd	End of Road	2660-ft
Nethermead Court	Promenade Drive	Promenade Drive	315-ft
Grace Park Lane	Promenade Drive	Promenade Drive	370-ft
Sojourn Court	Fairsted Lane	End of Road	940-ft

Calvert Commons Drive	Long Common Pkwy	300-ft NW of Long Common Pkwy	535-ft
Pointe Chatauqua Lane	Front Park Circle	Tosomock Lane	545-ft
Tosomock Lane	Leffert's House Place	End of Road	3625-ft
Fen Court	Tosomock Lane	Tosomock Lane	660-ft

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

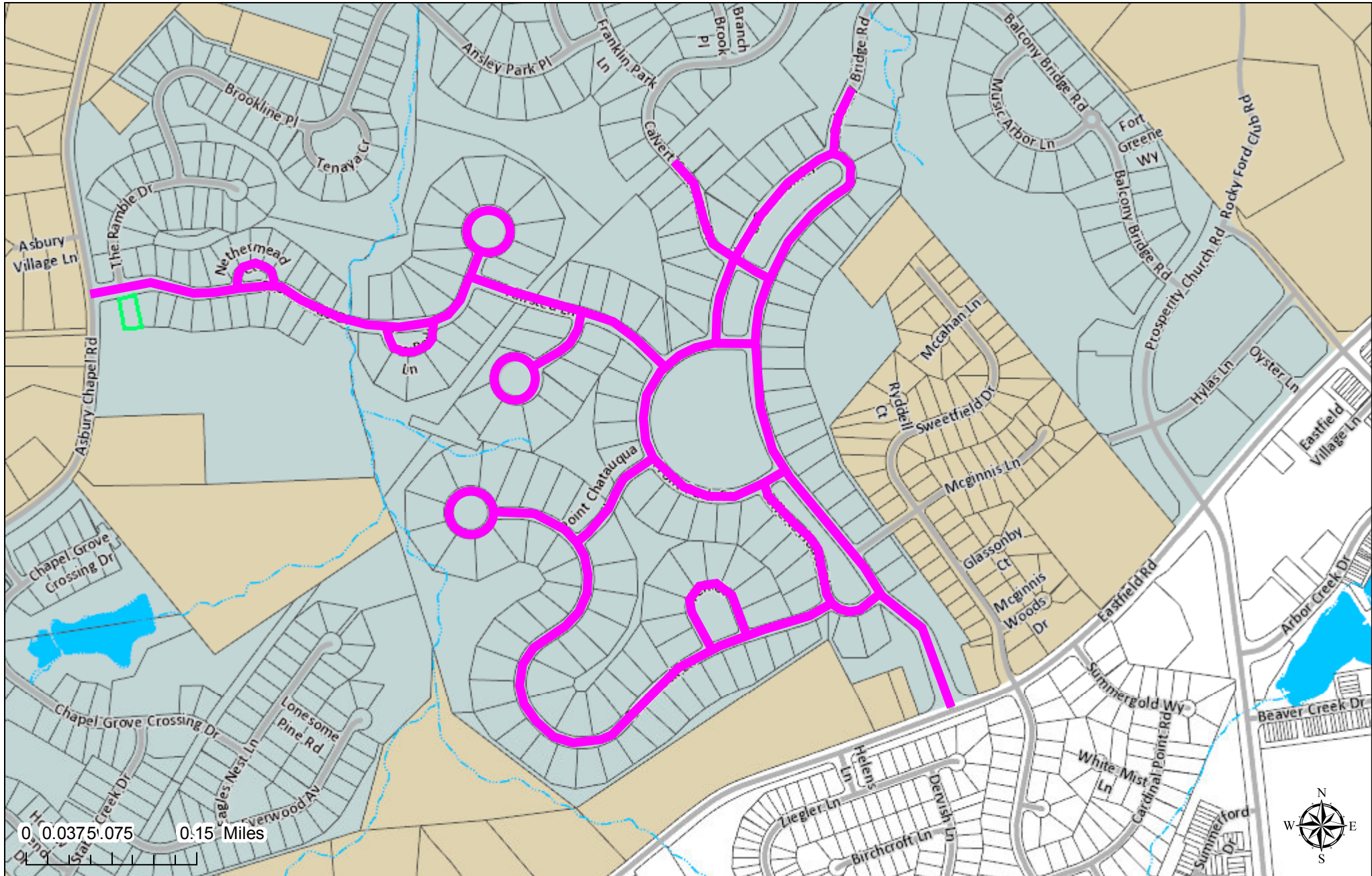
ATTACHMENTS:

1. Olmsted Phase 1 - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Olmsted Phase 1A, 1B, 1C

Date Printed: 10/23/2023 2:38:09 PM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Streets for Town Maintenance located in Ramseys Glen Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in the Ramsey's Glen Subdivision.

Street Name	From	To	Approx. Length
Ramsey's Glen Dr	Ramah Church Rd	Hindcross Dr	430-ft
Hindcross Dr	Ewart Rd	Tysons Corner Dr	1670-ft
Baldrige Dr	Hindcross Dr	McGuffy Dr	620-ft
Tysons Corner Dr	McGuffy Dr	End of Road	850-ft
McGuffy Dr	Hindcross Dr	End of Road	770-ft

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

ATTACHMENTS:

1. Ramsey's Glen - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Ramsey's Glen

Date Printed: 10/17/2023 7:50:23 AM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Streets for Town Maintenance located in Tanners Creek Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in the Tanner's Creek Subdivision.

Street Name	From	To	Approx. Length
Athens Blue Ln	Cane Branch Wy	152-ft E of Cane Branch Wy	150-ft
Cane Branch Wy	145-ft S of Mountain Majesty Wy	End of Road	490-ft

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

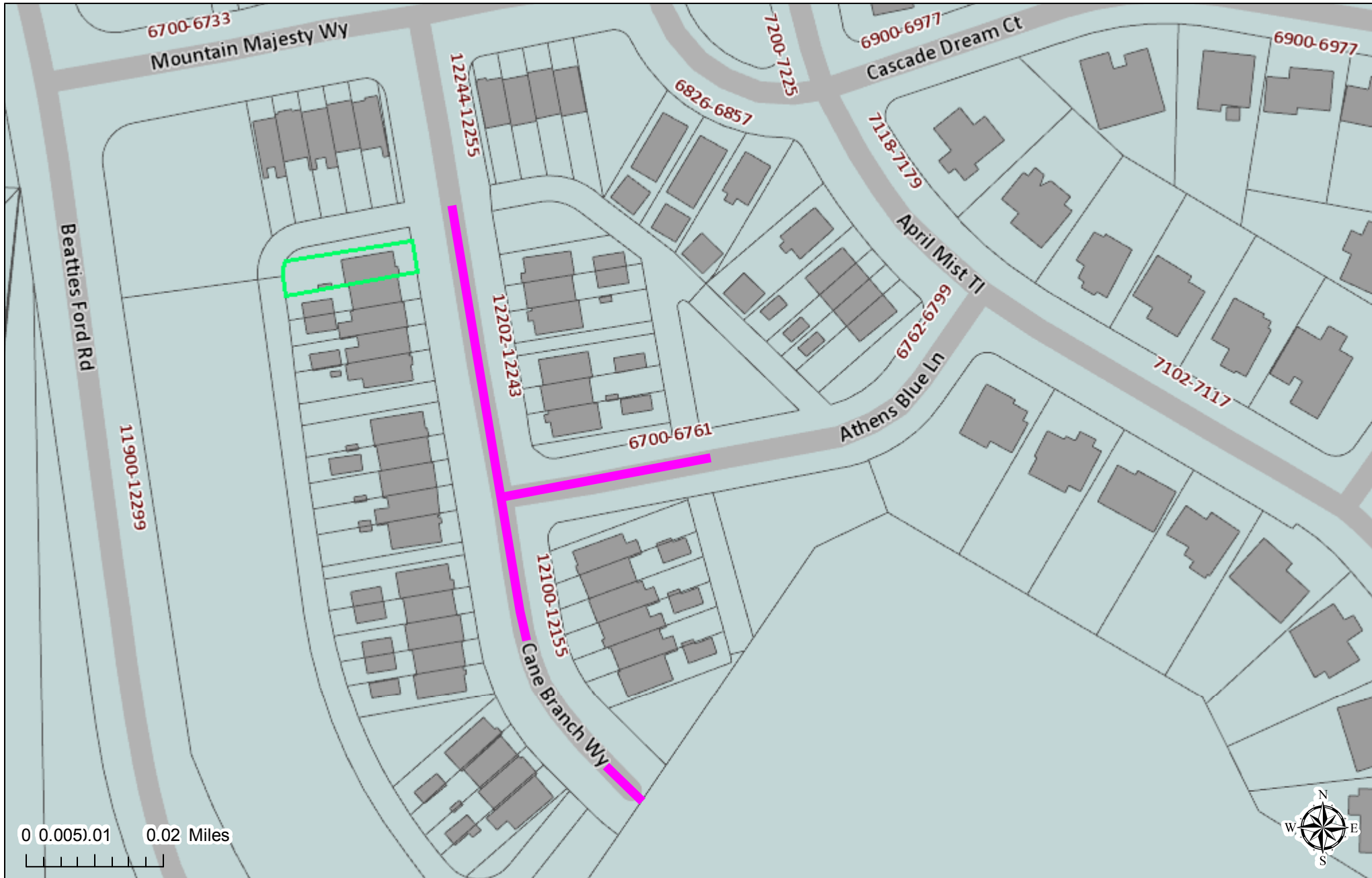
ATTACHMENTS:

1. Tanner's Creek - Phase 4 - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Tanner's Creek

Date Printed: 10/17/2023 9:11:11 AM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Streets for Town Maintenance located in Vermillion Subdivision

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in the Vermillion Subdivision.

Street Name	From	To	Approx. Length
Mallory Baches Ln	Garden District Rw	End of Road	105-ft
Winmau Ln	Memory Ln	Alley Bama	260-ft

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

ATTACHMENTS:

1. Vermillion - Mallory Baches Ln - Map
2. Vermillion - Wnmau Ln_Old Vermillion Dr - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Vermillion - Mallory Baches Ln

Date Printed: 10/17/2023 8:56:41 AM

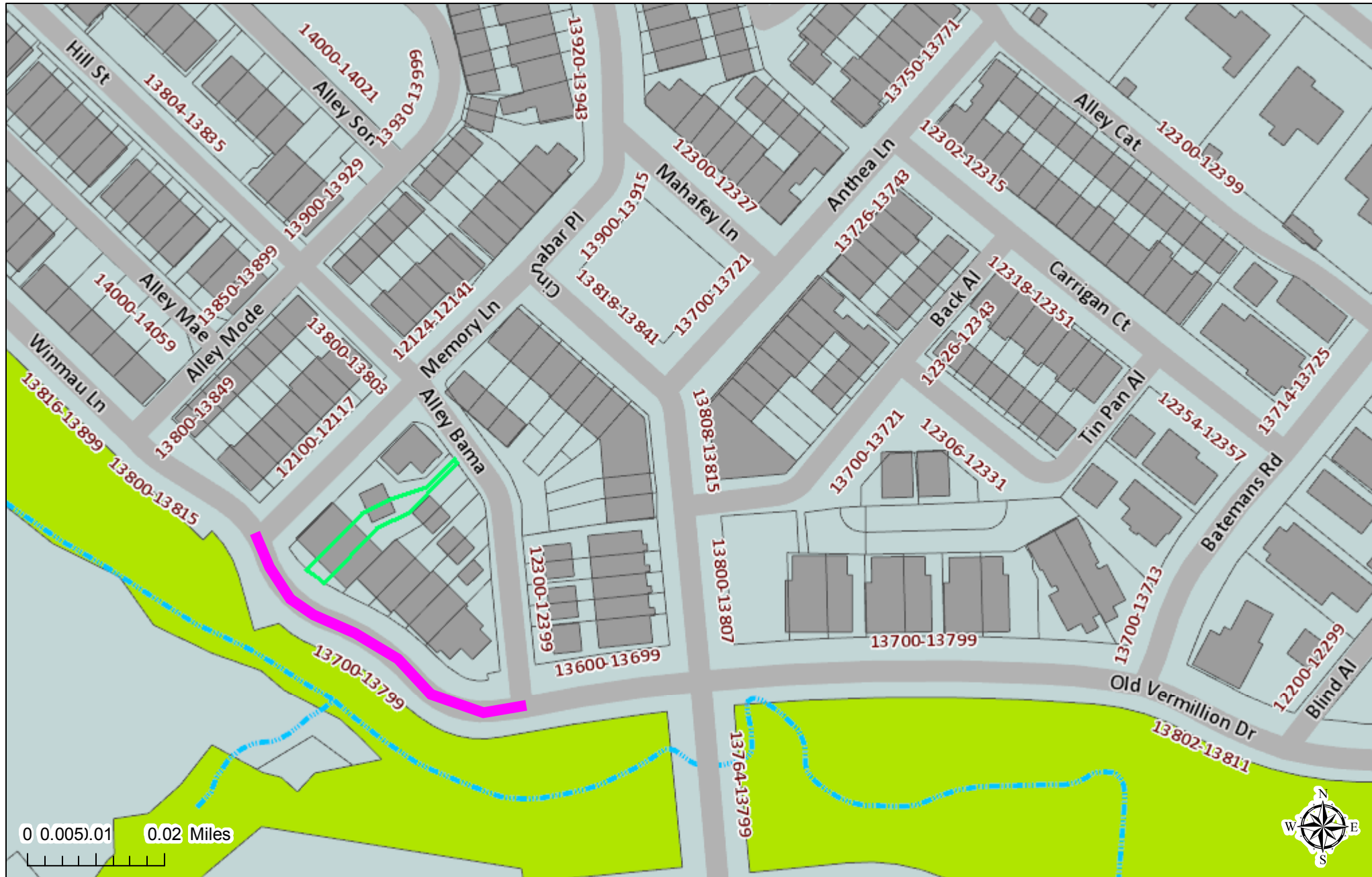


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Polaris 3G Map – Mecklenburg County, North Carolina

Vermillion

Date Printed: 10/17/2023 10:14:11 AM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Accept Streets for Town Maintenance located in Walden Subdivision Ph 3 and 4

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in Phase 3 and 4 of the Walden Subdivision.

Street Name	From	To	Approx. Length
Keyes Meadow Way	Fred Brown Rd	50-ft NW of Regent Grove Ln	1415-ft
Ravenall Drive	125-ft E of Keyes Meadow Way	Keyes Meadow Way	1405-ft
Fiery Mist Way	Ravenall Drive	Ravenall Drive	395-ft
Casabella Drive	170-ft NE of Keye Meadow Way	Keyes Meadow Way	170-ft
Keyes Meadow Way	50-ft NW of Regent Grove Ln	62-ft SE Of Regent Grove Ln	110-ft
Regent Grove Ln	135-ft NW of Thach Ct	Keyes Meadow Way	1890-ft
Rushwick Drive	190-ft SW of Regent Grove Ln	Regent Grove Ln	190-ft
Parsons Ridge Ln	185-ft SW of Regent Grove Ln	Regent Grove Ln	185-ft
Thach Ct	240-ft SW of Regent Grove Ln	Regent Grove Ln	240-ft

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

Powell Bill

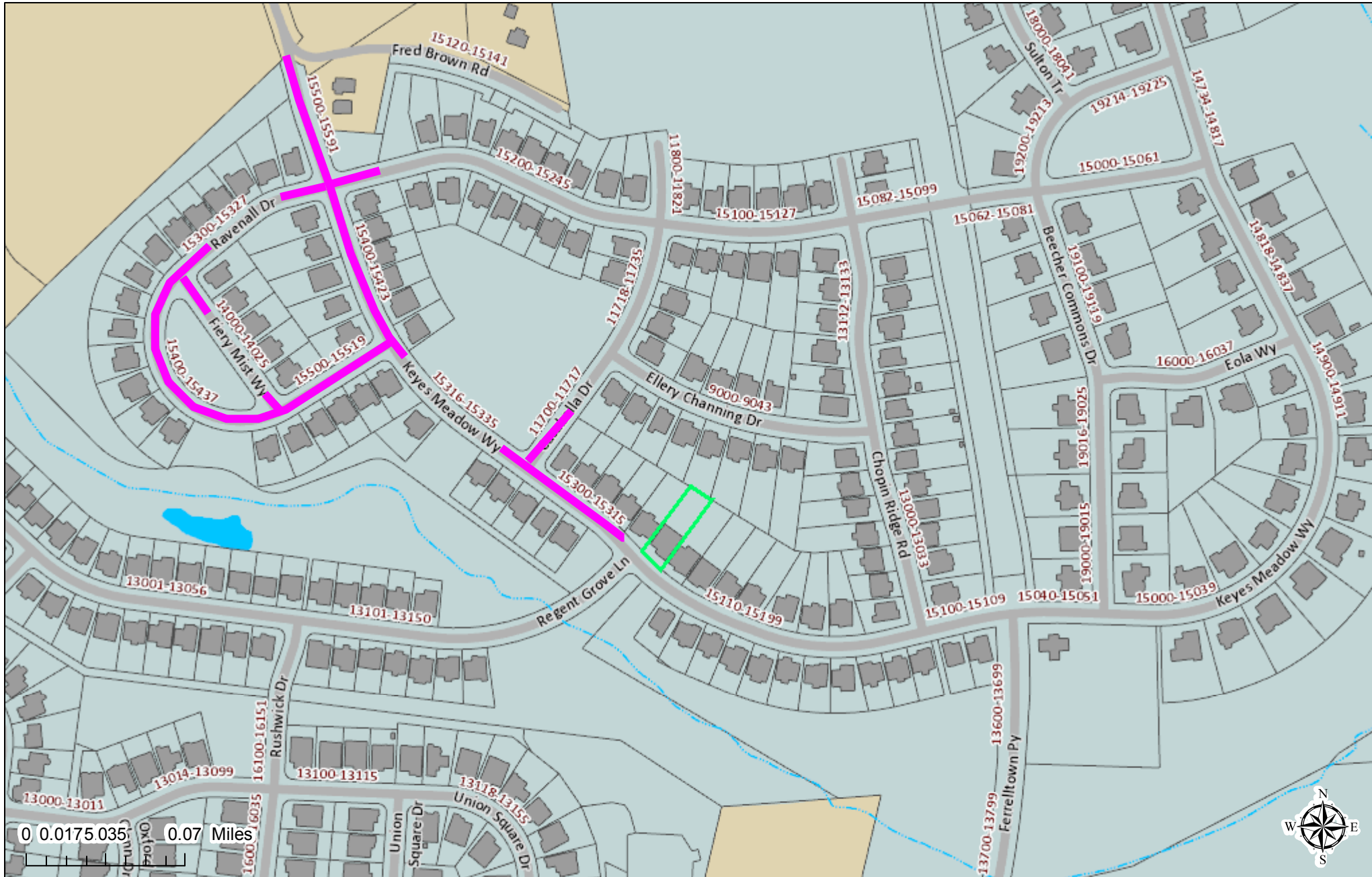
ATTACHMENTS:

1. Walden Phase 3 - Map
2. Walden Phase 4 - Map

Polaris 3G Map – Mecklenburg County, North Carolina

Walden Phase 3

Date Printed: 10/16/2023 2:35:08 PM

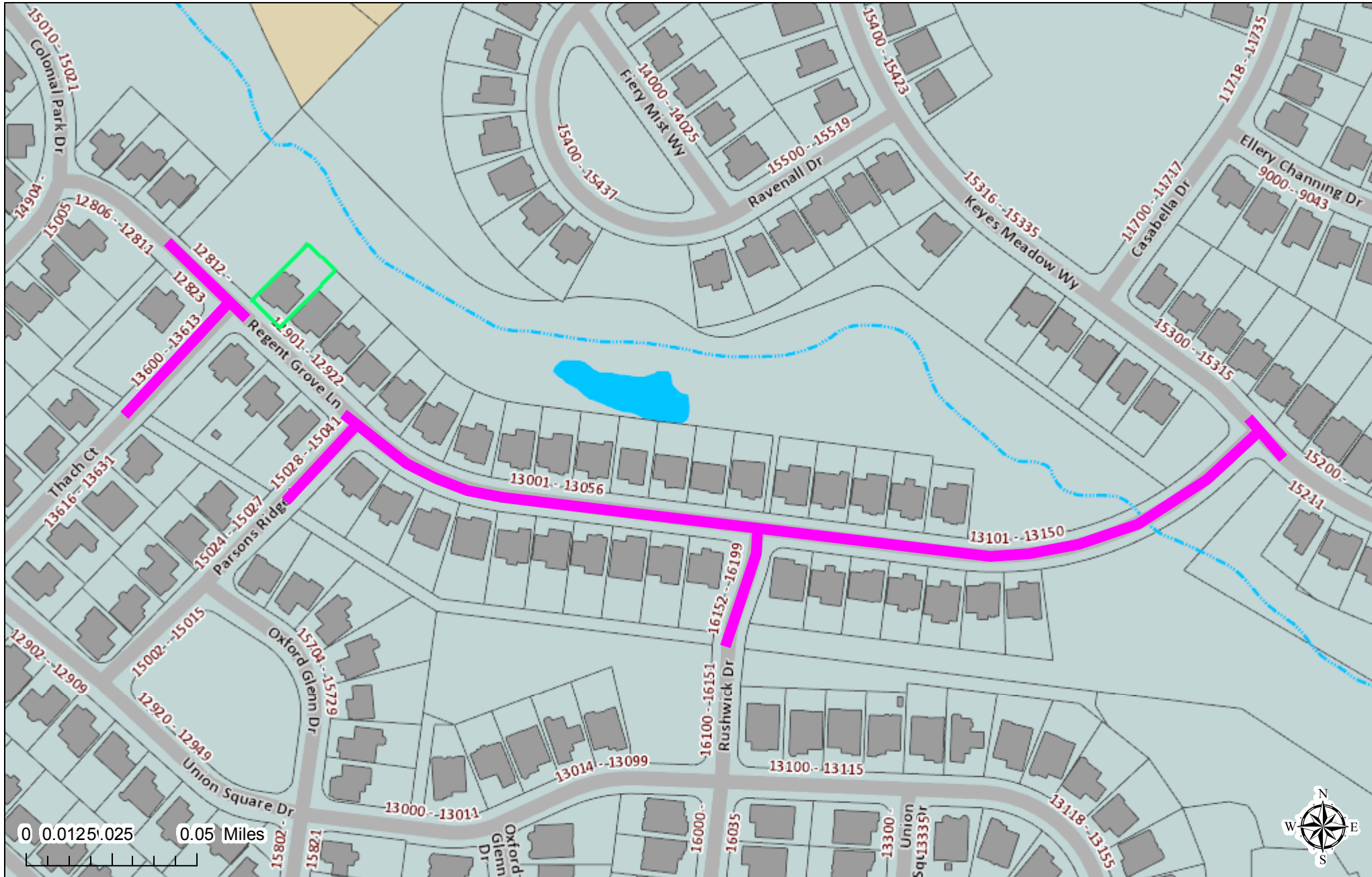


This map or report is prepared for the inventory of real property within Mecklenburg County and is compiled from recorded deeds, plats, tax maps, surveys, planimetric maps, and other public records and data. Users of this map or report are hereby notified that the aforementioned public primary information sources should be consulted for verification. Mecklenburg County and its mapping contractors assume no legal responsibility for the information contained herein.

Polaris 3G Map – Mecklenburg County, North Carolina

Walden Subdivision Phase 4

Date Printed: 9/1/2023 10:15:41 AM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Kevin Fox, Director of Public Works

Date: November 6, 2023

Subject: Acceptance of Streets - Walden Phases 5 and 7

EXPLAIN REQUEST:

It is recommended that the Town of Huntersville accept the streets listed below for maintenance, which are located in Phase 5 and 7 of the Walden Subdivision.

Street Name	From	To	Approx. Length
Keyes Meadow Way	140-ft N of Beechers Commons Dr	230-ft S of Eola Way	1075-ft
Eola Way	Beechers Commons Dr	Keyes Meadow Way	480-ft
Ravenall Dr	Keyes Meadow Way	161-ft W of Beechers Commons Dr	560-ft
Beechers Commons Dr	Keyes Meadow Way	206-ft S of Eola Way	1169-ft
Sulton Terrace	Beechers Commons Dr	150-ft N of Beechers Commons Dr	150--ft
Keyes Meadow Way	140-ft N of Beechers Commons Dr	Casabella Dr	670-ft
Sulton Terrace	150-ft N of Beechers Commons Dr	462-ft N of Casabella Dr	1120-ft
Casabella Dr	135-ft W of Sulton Terrace	End of Road	545-ft

ACTION RECOMMENDED:

Accept Streets for Town Maintenance

FINANCIAL IMPLICATIONS:

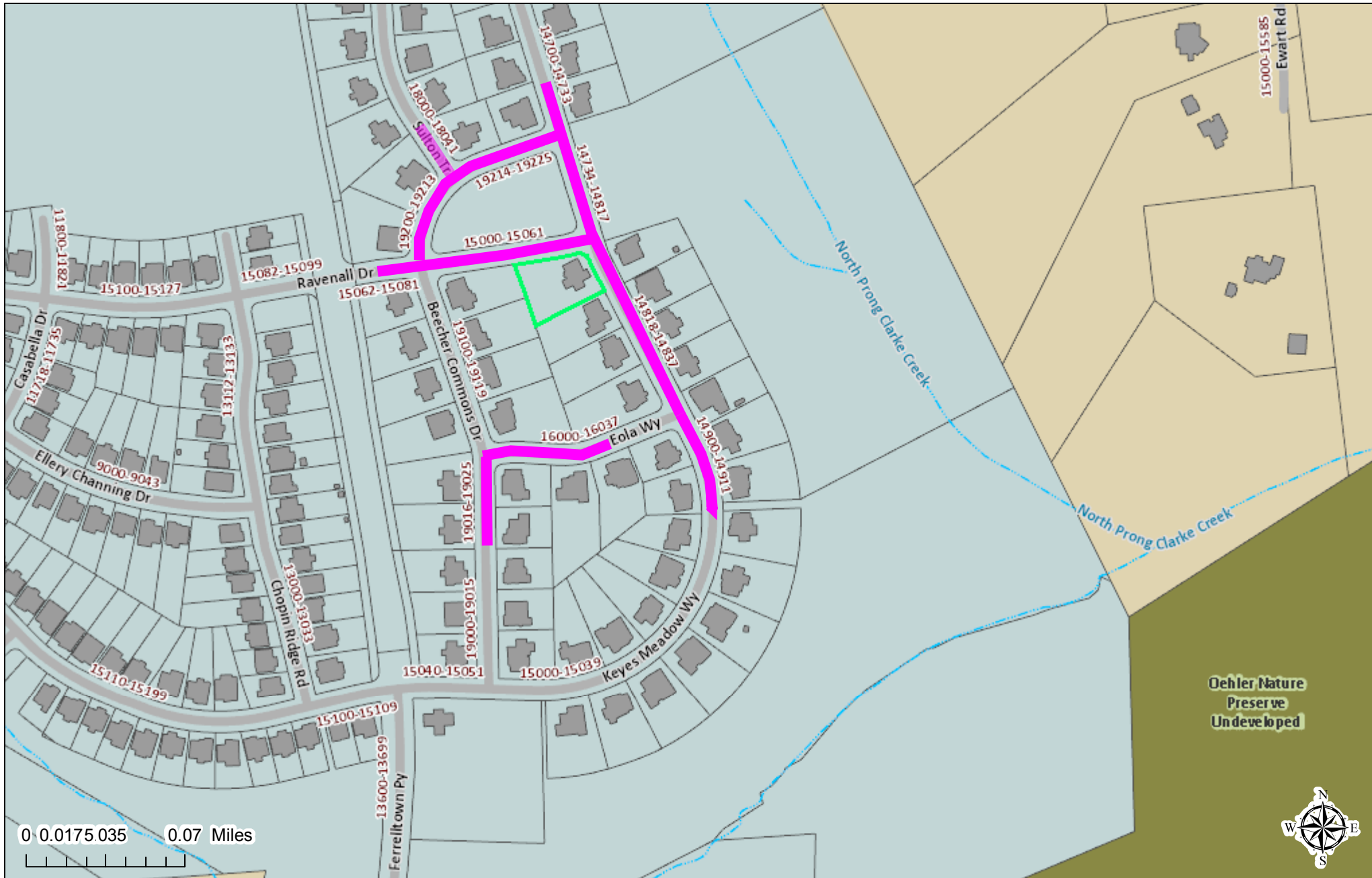
Powell Bill

ATTACHMENTS:

1. Walden Phase 5 - Map
2. Walden Phase 7 - Map

Walden Phase 5 All Maps

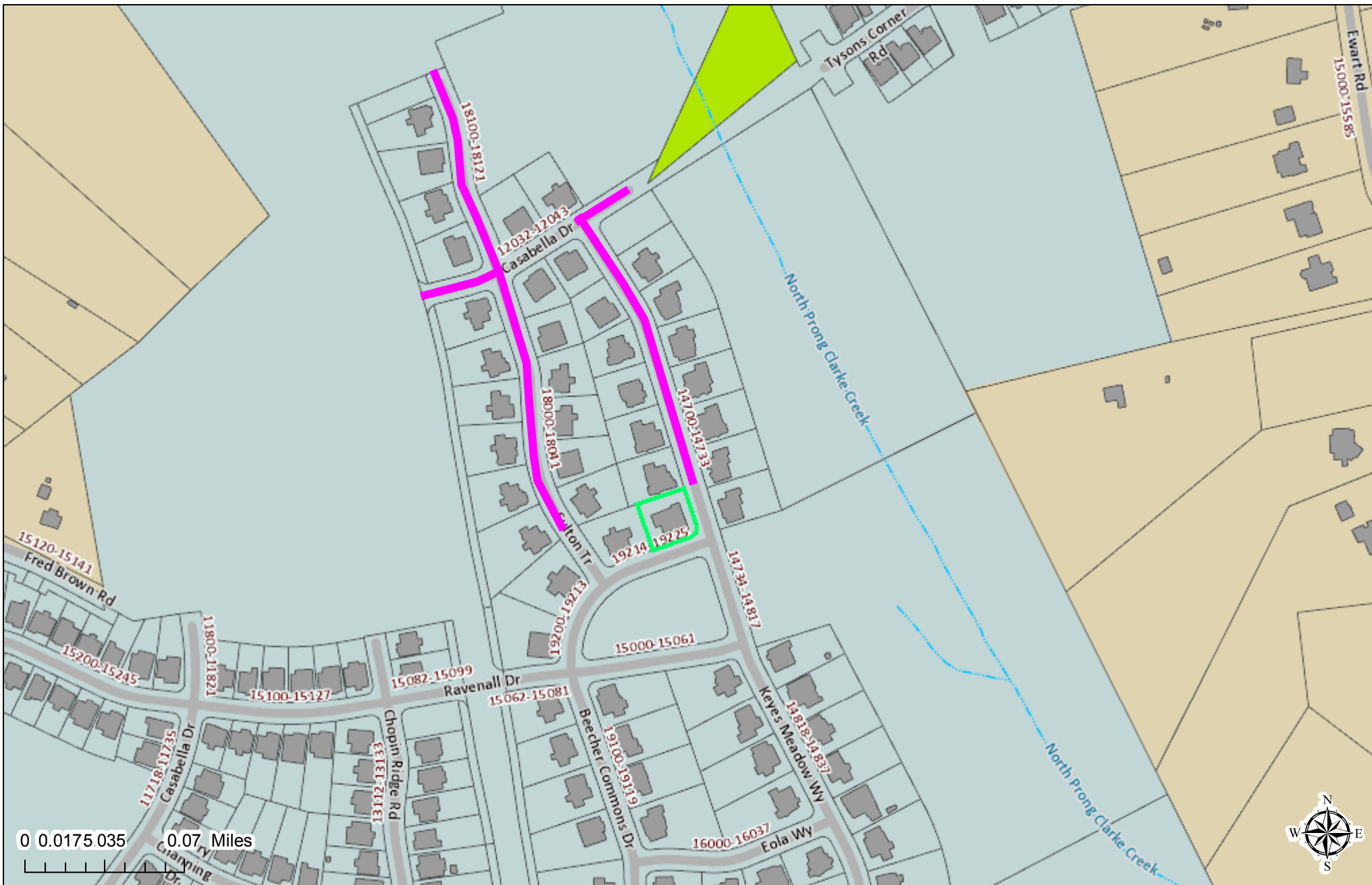
Date Printed: 10/16/2023 2:58:59 PM



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Walden Phase 7

Date Printed: 10/16/2023 4:47:42 PM



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**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Lora Mastrofrancesco, Transportation Engineer/Project Manager

Date: November 6, 2023

Subject: Traffic Calming Measures - Cambridge Grove Drive

EXPLAIN REQUEST:

Consider decision on traffic calming measures for Cambridge Grove Drive between Glencrest Drive and NC 73.

ACTION RECOMMENDED:

Adopt traffic calming measures for Cambridge Grove Drive between Glencrest Drive and NC 73.

FINANCIAL IMPLICATIONS:

Fund Balance

ATTACHMENTS:

1. Proposed Traffic Calming Options for Cambridge Grove 2023.11.6



Glencrest Dr

Glencrest Dr

Suggested location of
Speed Hump

~480 LF

~460 LF

STOP

STOP

Truitt Ct

Drew Ct

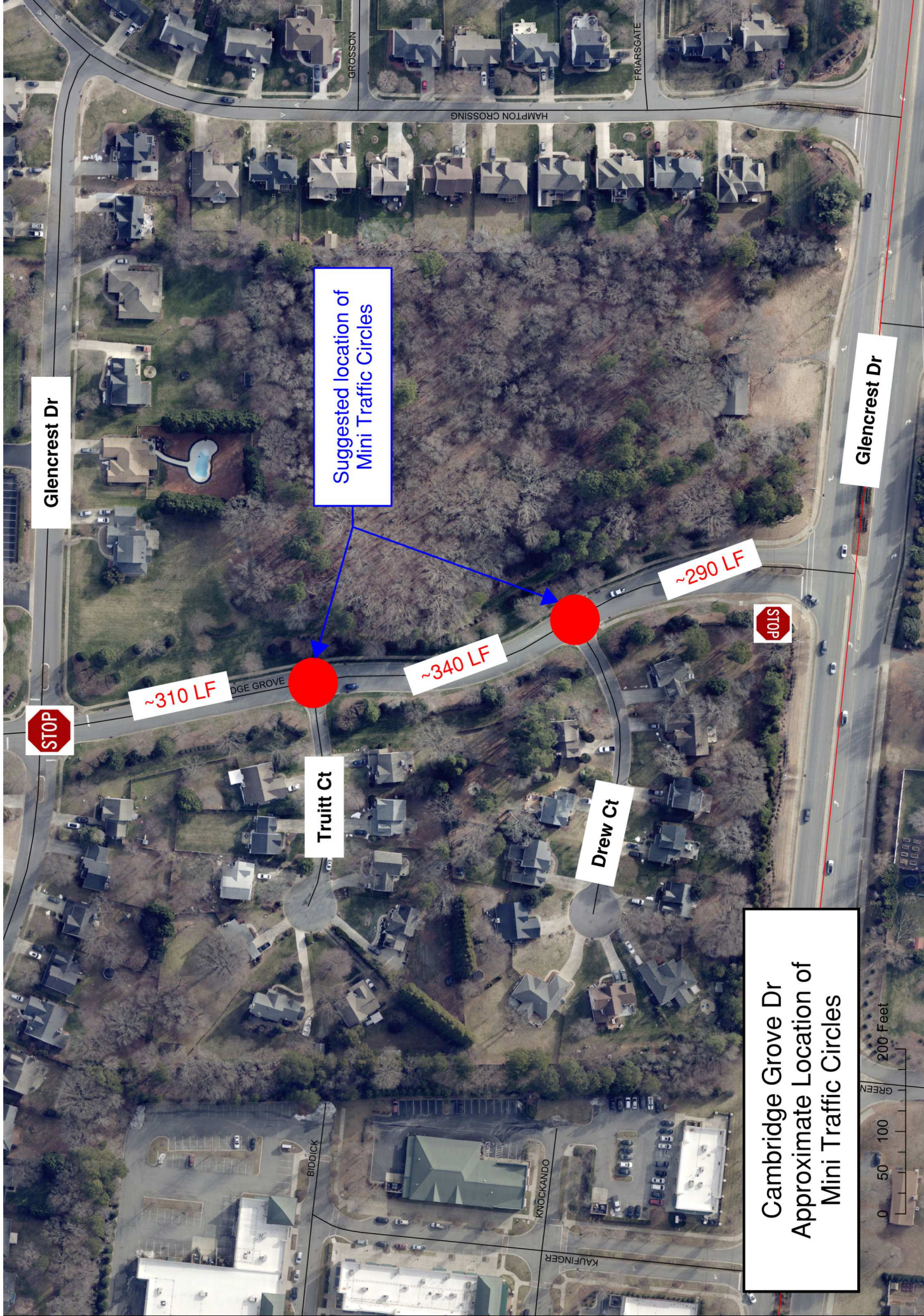
Cambridge Grove Dr
Approximate Location of
1 Speed Hump

0 50 100 200 Feet



Suggested location of
Speed Humps

Cambridge Grove Dr
Approximate Location of
2 Speed Humps



Glencrest Dr

Glencrest Dr

Suggested location of
Mini Traffic Circles

~310 LF

~340 LF

~290 LF

Truitt Ct

Drew Ct

Cambridge Grove Dr
Approximate Location of
Mini Traffic Circles

200 Feet

100

50

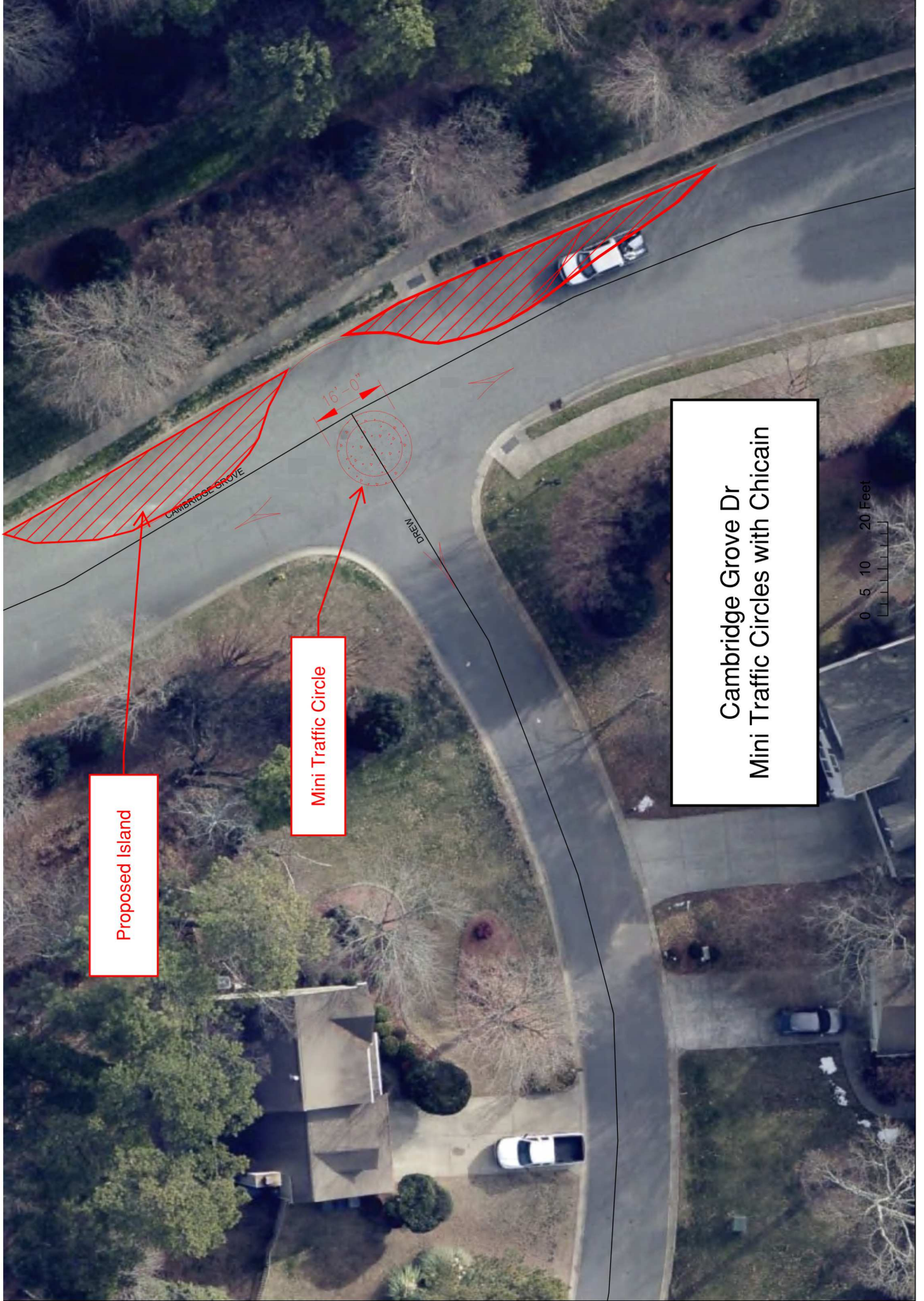
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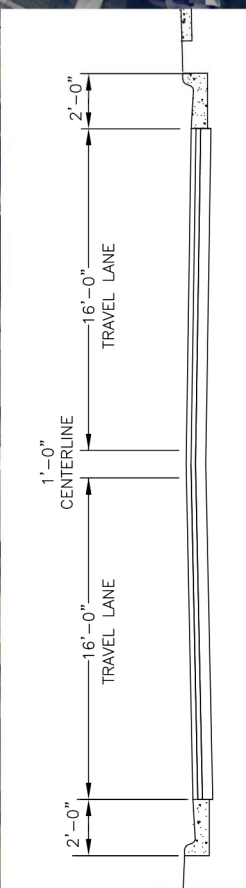
Proposed Island

Mini Traffic Circle

Cambridge Grove Dr
Mini Traffic Circles with Chicain

0 5 10 20 Feet





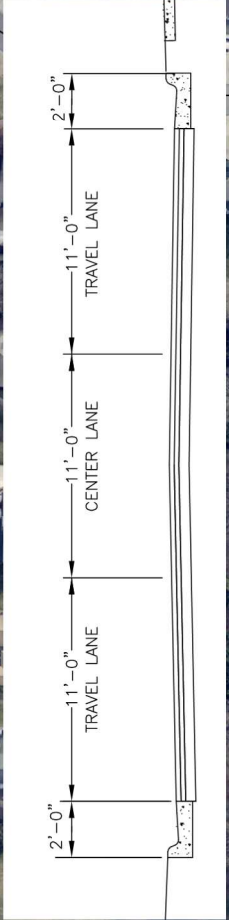
Truitt Ct

Drew Ct

Glencrest Dr

Cambridge Grove Dr
Pavement Markings
Double Centerline





Truitt Ct

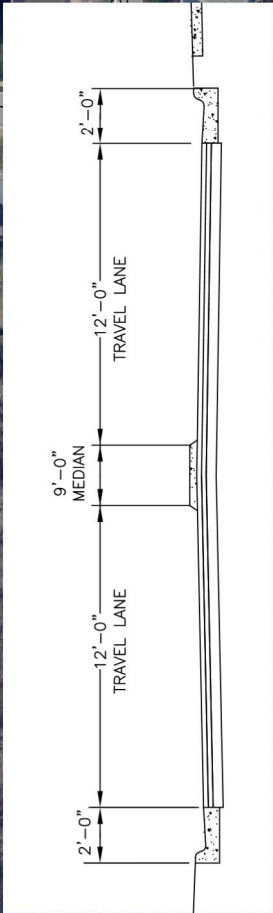
Drew Ct



Glencrest Dr

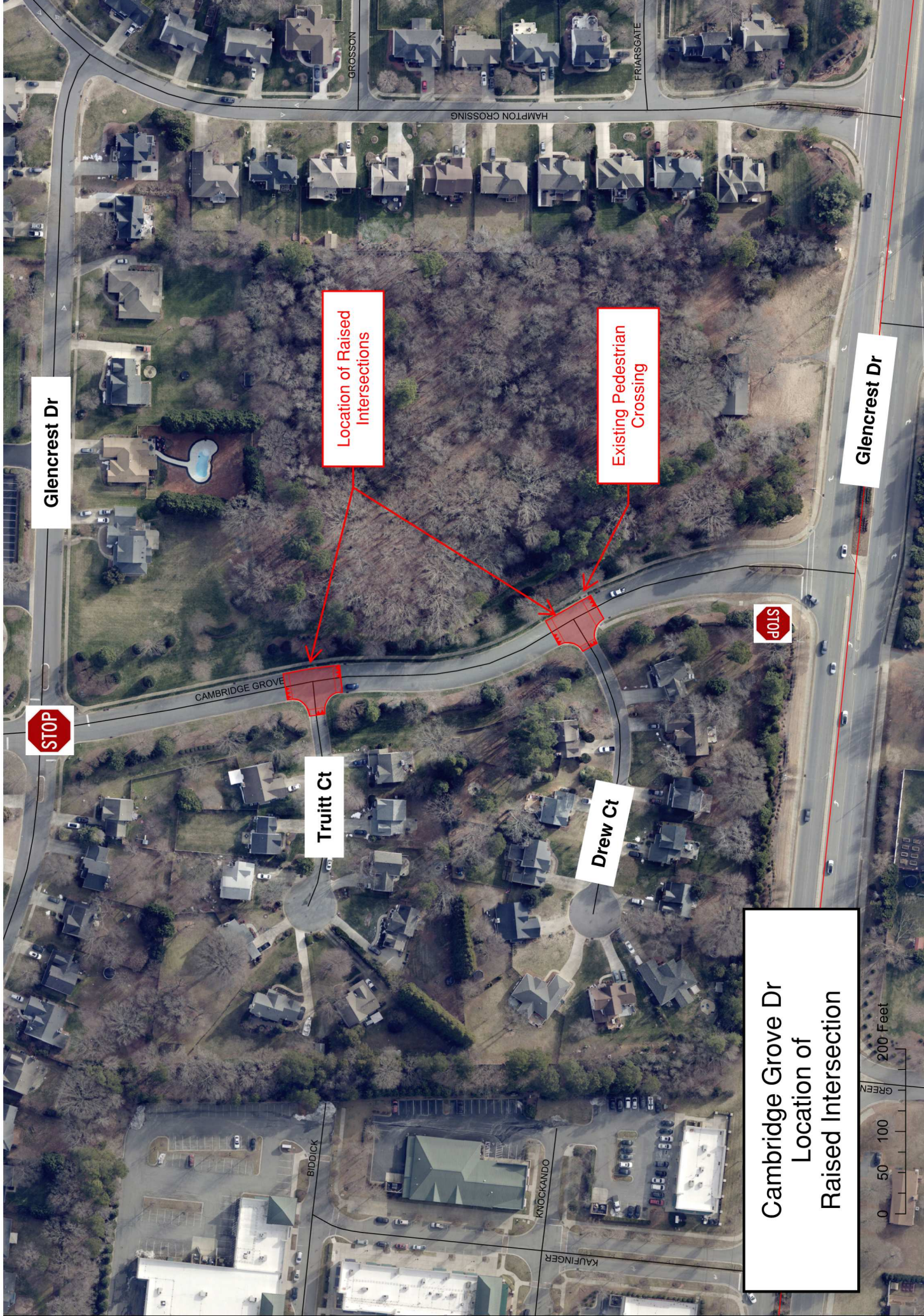
Cambridge Grove Dr
Pavement Markings
3 Lane Section





Cambridge Grove Dr
Approximate Location of
Center Median





Glencrest Dr

STOP

Truitt Ct

Location of Raised Intersections

Drew Ct

Existing Pedestrian Crossing

STOP

Glencrest Dr

Cambridge Grove Dr
Location of
Raised Intersection

0 50 100 200 Feet

**Town of Huntersville
Town Board
November 6, 2023**

To: Town Board

From: Brian Richards, Planning Director

Date: November 6, 2023

Subject: Petition #R21-08 - Beltway 77 Industrial Park Revision to Approved TIA improvements

EXPLAIN REQUEST:

Consider decision on Petition #R21-08, a request by Strategic Capital Partners for Beltway 77 Industrial Park for a revision to the approved TIA improvements.

ACTION RECOMMENDED:

FINANCIAL IMPLICATIONS:

ATTACHMENTS:

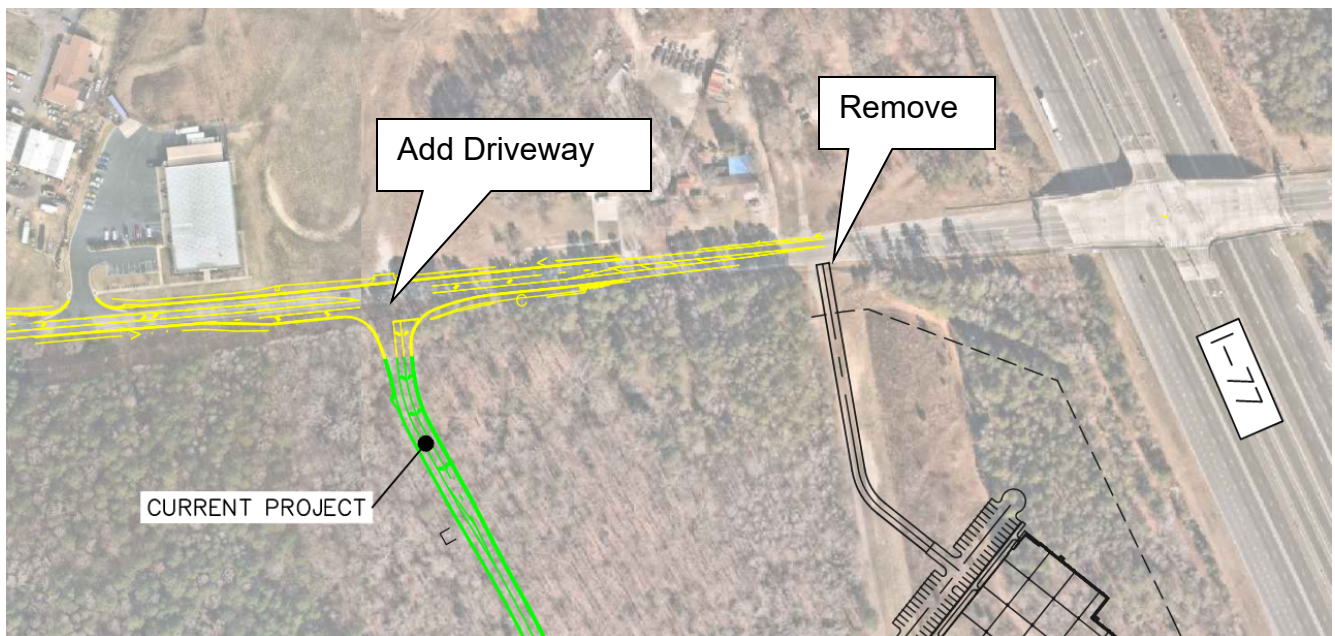
1. R21-08 TIA Modification November 2023 Memo
2. 77 Beltway Industrial Site_TTM_Final
3. 2023-10-20 77 Beltway Industrial Site_TIA Modification Request
4. 77 Beltway Industrial Site_TTM_Final Attachments



To: Town Board Members
From: Brian Richards, Assistant Planning Director
Date: November 1, 2023
Subject: ***R21-08 Beltway 77 TIA Revision***

The applicant, Strategic Capital Partners is requesting to remove a Right in Right out driveway access along Hambright Rd. This is to be replaced by a driveway access located at the CATS Park & Ride site.

Engineering and Planning staff have reviewed the TIA Revision submittal and determined that it is consistent with the requirements of Article 14 of the Zoning Ordinance.





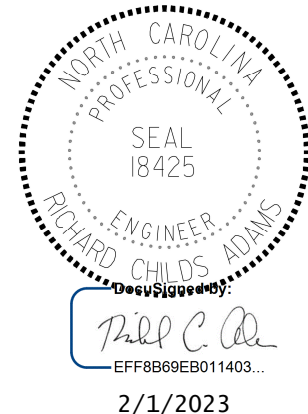
TECHNICAL MEMORANDUM

To: Felix Obregon, PE
NCDOT Division 10 District 2

Stephen Trott, PE
Town of Huntersville

From: Richard Adams, PE
Elizabeth Richard
Kimley-Horn and Associates, Inc.
NC License #F-0102

Date: February 1, 2023



Subject: **77 Beltway Industrial Site – Hambright Road Access**
Transportation Technical Memorandum FINAL

The Traffic Impact Analysis (TIA) prepared for the 77 Beltway Industrial Site (9-10-21) analyzed the traffic impact of the proposed site's phased build-out in horizon years 2022 and 2024. Since the approved TIA, the site has gone through a proposed access change. This Transportation Technical Memorandum (TTM) summarizes the analysis of the proposed access change.

Based on the most current site plan provided by the client, as shown in the attached **Figure 1**, the previously-proposed right-in/right-out (RIRO) Access B along Hambright Road is planned to be removed so that Access C is the only site access along Hambright Road. Based on coordination with Town of Huntersville and North Carolina Department of Transportation (NCDOT) staff, this TTM was required to analyze the intersection of Hambright Road and Access C based on the change in site access configuration.

Note that the site's land uses and intensities as stated in the *77 Beltway Industrial Site TIA* are expected to remain consistent.

TRAFFIC VOLUMES

Traffic volume projections were developed at the study intersection of Hambright Road and Access C for the following scenarios in the AM and PM peak hours:

- 2022 Build-out Phase 1 Conditions
- 2024 Build-out Phase 2 Conditions

The 2021 existing volumes, 2022/2024 background traffic volumes, and proposed phased trip generation were taken directly from the *77 Beltway Industrial Site TIA*.

The proposed development's trips were assigned to the surrounding network based on the approved overall distribution included in the *77 Beltway Industrial Site TIA*. The specific site trip assignment at Access C was updated to reflect the removal of Access B and is shown in **Figure 2**, attached.

Total Phase 1 traffic was calculated as the sum of the 2022 background traffic and proposed Phase 1 site traffic. Total Phase 2 traffic was calculated as the sum of the 2024 background traffic, proposed Phase 1 site traffic, and proposed Phase 2 site traffic. Phase 1 and Phase 2 build-out traffic volumes for the AM and PM peak-hours, respectively, are shown in **Figure 3** and are attached. Additionally, the volume development worksheet for the study intersection is attached.

ANALYSIS

Kimley-Horn prepared the following analyses as outlined in the *77 Beltway Industrial Site TIA* as applicable for the 2022 and 2024 build scenarios in the AM and PM peak hours:

- Capacity (Synchro)
- Queueing (Synchro and/or SimTraffic)
- NCDOT turn lane warrants

Synchro LOS results and 95th percentile queues are reported in the following subsection. Capacity analysis reports generated by Synchro Version 11 software and SimTraffic queueing/blocking reports are included in the **Attachments**.

Hambright Road and Access C

Table 1 summarizes the level of service (LOS), average control delay (seconds per vehicle), and intersection capacity utilization (ICU) at the proposed unsignalized intersection of Hambright Road and Access C.

As shown in **Table 1**, the proposed stop-controlled northbound approach of Access C is expected to operate with short to moderate delays during both peak hours under 2022 and 2024 build-out conditions. The ICU is not expected to meet the Town's standards during the AM peak; therefore, the following improvement has been identified:

- Construction of a westbound left-turn lane along Hambright Road with 150 feet of storage.

Table 1 - Hambright Road and Access C						
Condition	Measure	EB	WB		NB	Intersection
		EBTR	WBL*	WBT	NBLR	ICU (%)
AM Peak Hour						
Phase 1						
2022 Build-out	LOS (Delay)	A (0.0)	A (9.5)	A (0.0)	C (24.1)	E (83.6)
	Synchro 95th Q	0'	10'	0'	13'	
2022 Build-out IMP WBL	LOS (Delay)	A (0.0)	A (9.5)	A (0.0)	C (22.3)	A (46.9)
	Synchro 95th Q	0'	10'	0'	13'	
Phase 2						
2024 Build-out	LOS (Delay)	A (0.0)	A (9.8)	A (0.0)	D (32.2)	E (87.4)
	Synchro 95th Q	0'	15'	0'	23'	
2024 Build-out IMP WBL	LOS (Delay)	A (0.0)	A (9.8)	A (0.0)	D (27.5)	A (49.8)
	Synchro 95th Q	0'	15'	0'	20'	
PM Peak Hour						
Phase 1						
2022 Build-out	LOS (Delay)	A (0.0)	A (9.1)	A (0.0)	D (27.3)	C (68.8)
	Synchro 95th Q	0'	3'	0'	60'	
2022 Build-out IMP WBL	LOS (Delay)	A (0.0)	A (9.1)	A (0.0)	D (26.9)	A (47.7)
	Synchro 95th Q	0'	3'	0'	58'	
Phase 2						
2024 Build-out	LOS (Delay)	A (0.0)	A (9.2)	A (0.0)	E (38.7)	D (78.4)
	Synchro 95th Q	0'	3'	0'	103'	
2024 Build-out IMP WBL	LOS (Delay)	A (0.0)	A (9.2)	A (0.0)	E (37.6)	A (50.7)
	Synchro 95th Q	0'	3'	0'	100'	
*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions.						

*Conflicting left-turn movements are broken out per NCDOT guidelines under unsignalized conditions

With this improvement in place, the stop-controlled northbound approach of Access C is expected to continue to operate with short to moderate delays during both peak hours under 2022 and 2024 build-out conditions and an acceptable ICU.

Based on review of the SimTraffic simulation, the maximum queues along the westbound approach of Hambright Road for the left-turn movement are expected to be 66 feet and 463 feet during the AM and PM peak hours, respectively. Note that the queue during the PM peak hour is a result of high volume along Hambright Road. Separating the westbound left-turn and through lanes allows the left-turn traffic to bypass the through traffic. However, as shown in the SimTraffic simulation, due to long westbound through queues, some westbound left-turn vehicles are queued behind the westbound through vehicles causing SimTraffic to report long maximum queues for both movements. Therefore, the recommended westbound storage length is based on coordination with NCDOT staff.

Based on the anticipated queues on the northbound approach, an internal protected stem (IPS) of 250 feet along Access C is recommended. This is expected to be met based on the current site plan. Note that this IPS length is recommended to be re-evaluated in the future based on further development or intersection signalization.

TURN LANE WARRANTS

Additional turn-lane improvements for unsignalized site driveway intersections beyond those necessary for capacity were determined based on a review of the figure titled 'Warrant for Left and Right-Turn Lanes' found on page 80 in the NCDOT *Policy On Street and Driveway Access to North Carolina Highways*. The results of the warrants for left and right-turn lanes under 2022 and 2024 build-out conditions are summarized by intersection below and included in the **Attachments**.

2022 Build-out Phase 1 Conditions

Hambright Road and Access C

- Westbound left-turn lane along Hambright Road with 100 feet of storage

As noted earlier, a westbound left-turn lane is recommended to be constructed for capacity purposes.

2024 Build-out Phase 2 Conditions

Hambright Road and Access C

- Westbound left-turn lane along Hambright Road with 125 feet of storage
- Eastbound right-turn lane along Hambright Road with 50 feet of storage

As noted earlier, a westbound left-turn lane is recommended to be constructed for capacity purposes.

Based on NCDOT Congestion Management Capacity Analysis Guidelines, full storage for right-turn lanes should accommodate a minimum of 100 feet. Based on previous coordination with Town and NCDOT staff, an eastbound right-turn lane along Hambright Road with a minimum of 100 feet of storage is recommended.

CONCLUSIONS

Based on the analyses contained herein and coordination with NCDOT and the Town of Huntersville, the following improvements are recommended to mitigate the impact of the proposed development under 2022 and 2024 build-out conditions:

Hambright Road and Access C

- Construction of a westbound left-turn lane along Hambright Road with 150 feet of storage.
- Construction of an eastbound right-turn lane along Hambright Road with 100 feet of storage.
- Construction of the northbound approach of Access C to include:
 - o one ingress lane,
 - o a left-turn egress lane with 250 feet of storage,
 - o a right-turn egress lane,
 - o stop control, and an IPS of 250 feet.

The mitigation improvements are shown in **Figure 4**, attached.

Please contact me with questions.

Cc:

- Hassan Malik, EIT, NCDOT Division 10 District 2

Attachments:

- Figures 1- 4
- Volume Development Worksheet
- Intersection Capacity Analysis Reports
- Queuing and Blocking Reports
- NCDOT Turn Lane Warrants



To: Brian Richards
Town of Huntersville

From: Thomas Shirley, PE
Kimley-Horn and Associates, Inc.
NC License #F-0102

Date: October 20, 2023

Subject: **77 Beltway Industrial Site**
TIA Modification Request

The Applicant, Strategic Capital Partners, for the approved Beltway 77 rezoning (#R21-08) is requesting to modify TIA mitigation for removal of an access point along Hambright Road.

Article 14.4.2 of the Zoning Ordinance states the following regarding mitigation:

“A modification to the required mitigation, which may be considered by the Town Board as meeting the intent of the Ordinance, is where proposed mitigation at an impacted intersection provides measurable and beneficial surplus capacity (above and beyond that required to meet the minimum requirements) such that the surplus capacity may be counted toward credit in the mitigation of other impacted intersections.”

The applicant is not requesting a modification to the list of improvements committed as part of the overall development, outside of removal of the Access B and the associated eastbound right-turn lane along Hambright Road. Note that this access removal is requested as Access C is now negotiated and Access B is redundant.

The Traffic Impact Analysis (TIA) prepared for the 77 Beltway Industrial Site (9-10-21) analyzed the traffic impact of the proposed site’s phased build-out in horizon years 2022 and 2024. Based on the analyses contained in the approved TIA, and coordination with the Town of Huntersville and North Carolina Department of Transportation (NCDOT), the following improvements were recommended to mitigate the impact of the proposed development under 2022 and 2024 build-out conditions:

Mt. Holly-Huntersville Road and Hambright Road

- Construction of an eastbound left-turn lane along Hambright Road with 125 feet of storage.
- Extension of the eastbound right-turn lane along Hambright Road to 200 feet of storage.
- Construction of a westbound left-turn lane along Hambright Road with 100 feet of storage.

Statesville Road (US 21) and Alexandriana Road

- Construction of an eastbound right-turn lane along Alexandriana Road with storage and taper maximized to the existing bridge crossing I-77.

Statesville Road (US 21) and Hambright Road

- Construction of an eastbound right-turn lane along Hambright Road with 175 feet of storage.

Alexandriana Road and Access A

- Construction of an eastbound left-turn lane along Alexandriana Road with 100 feet of storage.
- Construction of a westbound right-turn lane along Alexandriana Road with 100 feet of storage.
- Construction of the southbound approach of Access A with one ingress and two egress lanes and an internal protected stem (IPS) of 415 feet.

It should be noted that consideration should be given to have the first internal road be right-in/right-out (RIRO) to accommodate the recommended IPS.

Hambright Road and Access B

- Construction of the northbound approach of Access B with one ingress lane, one egress lane, right-turn channelization island, and an IPS of 100 feet.
- Construct a median island in the vicinity of the driveway to promote RIRO.
- Construction of an eastbound right-turn lane along Hambright Road with 75 feet of storage.

Hambright Road and Access C

- Construction of a westbound left-turn lane along Hambright Road with 125 feet of storage.
- Construction of an eastbound right-turn lane along Hambright Road with 75 feet of storage.
- Construction of the northbound approach of Access C with one ingress lane, two egress lanes, and an IPS of 100 feet.

After the approved TIA, the site had gone through a proposed access change. A Transportation Technical Memorandum (TTM) was prepared for the 77 Beltway Industrial Site (2-1-2023) and summarized the analysis of the proposed access change in which Access B was removed and so that Access C was the only site access along Hambright Road. Based on the analyses contained in the approved TTM, and coordination with the Town of Huntersville and NCDOT, the following improvements were recommended to mitigate the impact of the proposed development under 2022 and 2024 build-out conditions:

Note that, with the exception of Hambright Road/Access C and the removal of Hambright Road/Access B, the other identified mitigation improvements remained the same between the approved TIA and approved TTM. Therefore, the revisions requested include:

Hambright Road and Access B

- Removal of this proposed access.

Hambright Road and Access C

- Construction of a westbound left-turn lane along Hambright Road with 150 feet of storage.
- Construction of an eastbound right-turn lane along Hambright Road with 100 feet of storage.

- Construction of the northbound approach of Access C to include:
 - one ingress lane, a left-turn egress lane with 250 feet of storage, a right-turn egress lane, stop control, and an IPS of 250 feet.

The Town of Huntersville and NCDOT approved the TIA and TTM findings and recommendations.

The table below lists the ICU percentage impact of the access removal below, as presented in the TIA and subsequent TTM. Note that that Access C is a new access point that is proposed to operate with an acceptable ICU percentage with and without Access B.

Table 1 - Hambright Road and Access C (Full Build)	
Condition	Intersection ICU (%)
AM Peak Hour	
2024 Build-out IMP (with Access B)	A (49.7)
2024 Build-out IMP (Access B Removed)	A (49.8)
PM Peak Hour	
2024 Build-out IMP (with Access B)	A (46.5)
2024 Build-out IMP (Access B Removed)	A (50.7)

Please contact Thomas Shirley (Thomas.Shirley@kimley-horn.com, 980-296-0814) with questions.

Attachments

Figures



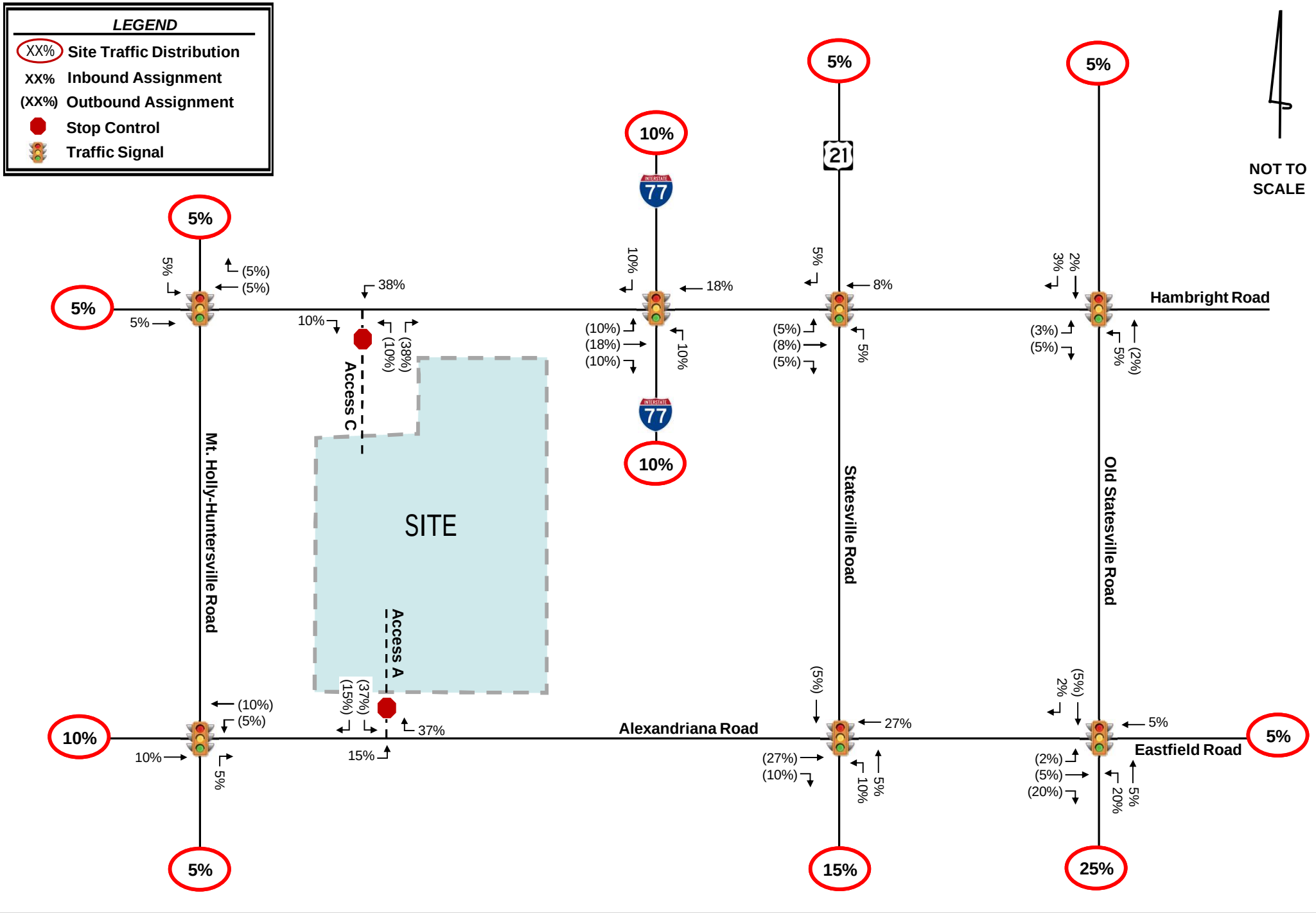
HUNTERSVILLE - BELTWAY 77

DATE: 12-20-2022

SHEET 1 of 1

Kimley»Horn
INC. LICENSE #P-0702
200 SOUTH TRYON STREET, SUITE 200
CHARLOTTE, NORTH CAROLINA 28202
(704) 363-9300

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NOT TO
SCALE

LEGEND

XX

2022 Background Traffic Volumes

(XX)

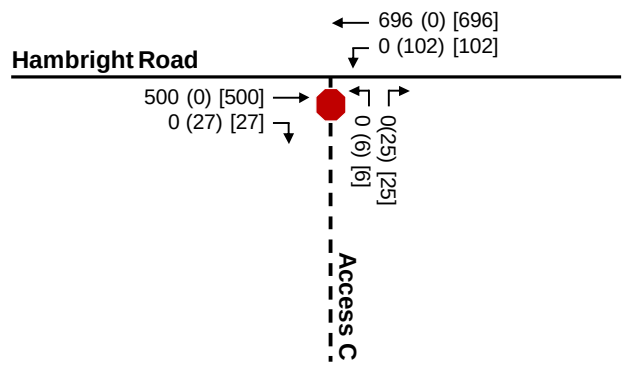
Phase 1 Site Trips

[XX]

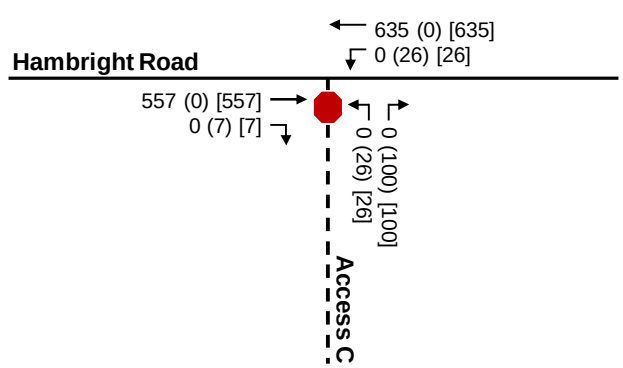
Build-out Traffic Volumes

●

Stop Control



2022 Build AM Peak-Hour Volumes



2022 Build PM Peak-Hour Volumes

LEGEND

XX

2024 Background Traffic Volumes

(XX)

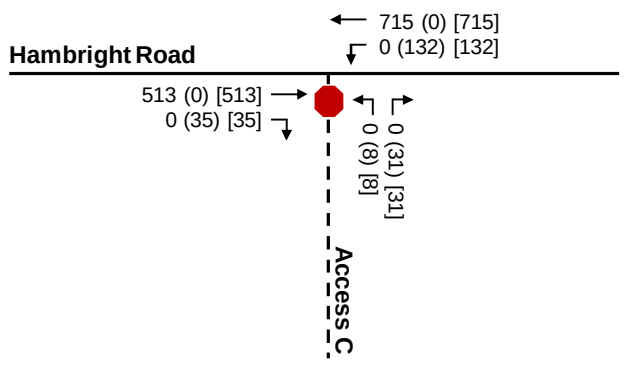
Phase 1 and Phase 2 Site Trips

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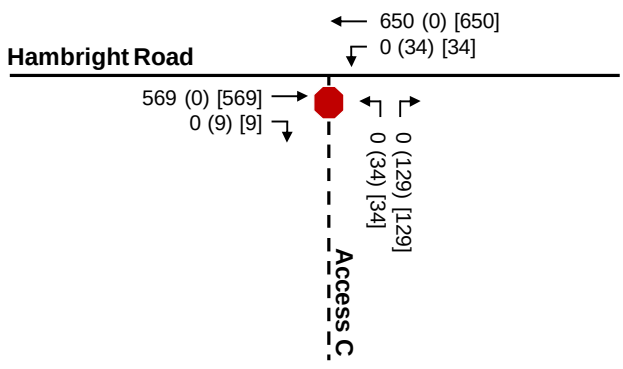
Build-out Traffic Volumes

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Stop Control



2024 Build AM Peak-Hour Volumes



2024 Build PM Peak-Hour Volumes

LEGEND

Existing Lane

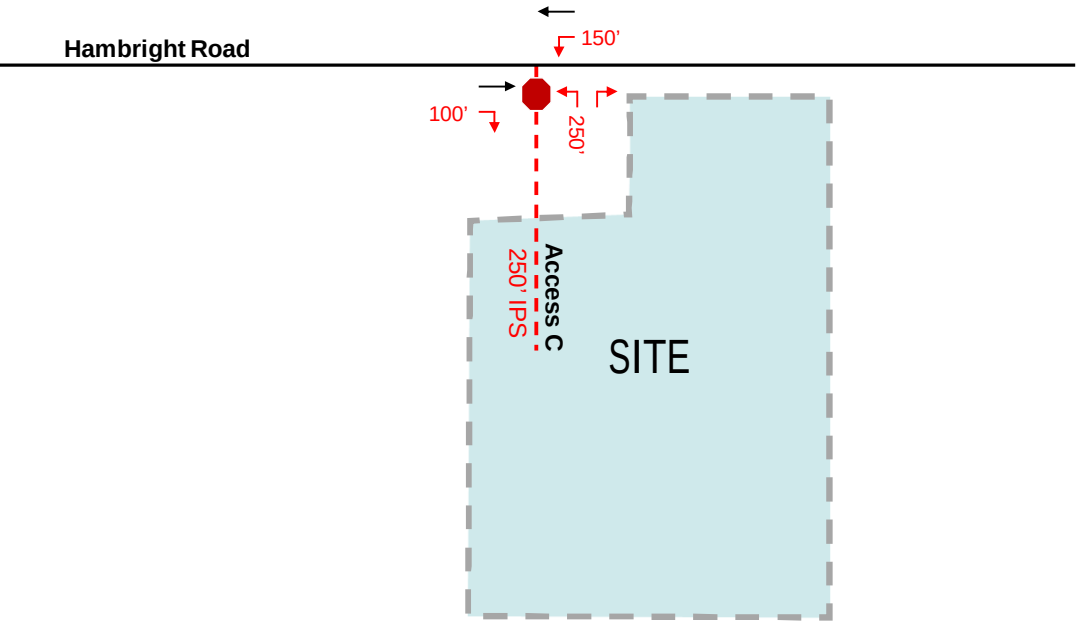
X' Storage Length

Stop Control

Improvement Identified

IPS Internal Protected Stem

NOT TO SCALE



Intersection Volume Development

INTERSECTION VOLUME DEVELOPMENT

Access C and Hambright Road AM PEAK HOUR

Description	Access C				-				Hambright Road				Hambright Road			
	Northbound		Right	U-turn	Southbound		Right	U-turn	Eastbound		Right	U-turn	Westbound		Right	U-turn
	Left	Through			Left	Through			Left	Through			Left	Through		
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	316	0	0	0	465	0	0
2021 Existing PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.75	0.90	0.90	0.90	0.78	0.90	0.90
2022 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.77	0.90	0.90	0.90	0.80	0.90	0.90
2022 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.77	0.90	0.90	0.90	0.80	0.90	0.90
2024 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.77	0.90	0.90	0.90	0.79	0.90	0.90
2024 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.77	0.90	0.90	0.90	0.79	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	7%	2%	2%	2%	5%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
2022 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	322	0	0	0	474	0	0
2024 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	335	0	0	0	493	0	0
CMS K-8 School	0	0	0	0	0	0	0	0	0	38	0	0	0	35	0	0
Huntersville Sports Village	0	0	0	0	0	0	0	0	0	38	0	0	0	71	0	0
Thrive Athletics	0	0	0	0	0	0	0	0	0	10	0	0	0	25	0	0
Kurz	0	0	0	0	0	0	0	0	0	10	0	0	0	24	0	0
Stoneybrook Station Subdivision	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
Bryton	0	0	0	0	0	0	0	0	0	42	0	0	0	24	0	0
Oak Grove Hill Subdivision	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Statesville Mixed Use	0	0	0	0	0	0	0	0	0	35	0	0	0	32	0	0
Phoenix Montessori School Expansion	0	0	0	0	0	0	0	0	0	3	0	0	0	5	0	0
Magnolia Walk Subdivision	0	0	0	0	0	0	0	0	0	1	0	0	0	3	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	178	0	0	0	222	0	0
2022 Background Traffic	0	0	0	0	0	0	0	0	0	500	0	0	0	696	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	513	0	0	0	715	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	38%	0%	0%	0%
Percent Outbound Assignment	10%	0%	38%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Phase 1 Project Trips	6	0	25	0	0	0	0	0	0	0	27	0	102	0	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	38%	0%	0%	0%
Percent Outbound Assignment	10%	0%	38%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Full Build Project Trips	8	0	31	0	0	0	0	0	0	0	35	0	132	0	0	0
2022 Buildout Total	6	0	25	0	0	0	0	0	0	500	27	0	102	696	0	0
2024 Buildout Total	8	0	31	0	0	0	0	0	0	513	35	0	132	715	0	0

PM PEAK HOUR

Description	Access C				-				Hambright Road				Hambright Road			
	Northbound		Right	U-turn	Southbound		Right	U-turn	Eastbound		Right	U-turn	Westbound		Right	U-turn
	Left	Through			Left	Through			Left	Through			Left	Through		
2021 Existing Traffic	0	0	0	0	0	0	0	0	0	302	0	0	0	375	0	0
2021 Existing PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.83	0.90	0.90	0.90	0.83	0.90	0.90
2022 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.83	0.90	0.90	0.90	0.83	0.90	0.90
2022 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.83	0.90	0.90	0.90	0.83	0.90	0.90
2024 Background PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.83	0.90	0.90	0.90	0.83	0.90	0.90
2024 Build PHF	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.90	0.83	0.90	0.90	0.90	0.83	0.90	0.90
Heavy Vehicle %	2%	2%	2%	2%	2%	2%	2%	2%	2%	3%	2%	2%	2%	4%	2%	2%
Annual Growth Rate	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
Growth Factor #1	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020	1.020
2022 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	308	0	0	0	383	0	0
2024 Background Traffic (No AD)	0	0	0	0	0	0	0	0	0	320	0	0	0	398	0	0
CMS K-8 School	0	0	0	0	0	0	0	0	0	13	0	0	0	16	0	0
Huntersville Sports Village	0	0	0	0	0	0	0	0	0	112	0	0	0	101	0	0
Thrive Athletics	0	0	0	0	0	0	0	0	0	29	0	0	0	28	0	0
Kurz	0	0	0	0	0	0	0	0	0	19	0	0	0	14	0	0
Stoneybrook Station Subdivision	0	0	0	0	0	0	0	0	0	3	0	0	0	1	0	0
Bryton	0	0	0	0	0	0	0	0	0	35	0	0	0	53	0	0
Oak Grove Hill Subdivision	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Statesville Mixed Use	0	0	0	0	0	0	0	0	0	32	0	0	0	35	0	0
Phoenix Montessori School Expansion	0	0	0	0	0	0	0	0	0	4	0	0	0	3	0	0
Magnolia Walk Subdivision	0	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0
Approved Development Trips	0	0	0	0	0	0	0	0	0	249	0	0	0	252	0	0
2022 Background Traffic	0	0	0	0	0	0	0	0	0	557	0	0	0	635	0	0
2024 Background Traffic	0	0	0	0	0	0	0	0	0	569	0	0	0	650	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	38%	0%	0%	0%
Percent Outbound Assignment	10%	0%	38%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Phase 1 Project Trips	26	0	100	0	0	0	0	0	0	0	7	0	26	0	0	0
Percent Inbound Assignment	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	38%	0%	0%	0%
Percent Outbound Assignment	10%	0%	38%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Full Build Project Trips	34	0	129	0	0	0	0	0	0	0	9	0	34	0	0	0
2022 Buildout Total	26	0	100	0	0	0	0	0	0	557	7	0	26	635	0	0
2024 Buildout Total	34	0	129	0	0	0	0	0	0	569	9	0	34	650	0	0

Intersection Capacity Analysis

2022 Build-out Conditions

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM
2022 Build AM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	500	27	102	696	6	25
Future Volume (vph)	500	27	102	696	6	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12
Grade (%)	0%			1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.892	
Flt Protected				0.994	0.990	
Satd. Flow (prot)	1769	0	0	1796	1590	0
Flt Permitted				0.994	0.990	
Satd. Flow (perm)	1769	0	0	1796	1590	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1179	
Travel Time (s)	13.7			18.1	32.2	
Peak Hour Factor	0.77	0.90	0.90	0.80	0.90	0.90
Heavy Vehicles (%)	7%	2%	2%	5%	2%	2%
Adj. Flow (vph)	649	30	113	870	7	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	679	0	0	983	35	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	83.6%			ICU Level of Service E		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	500	27	102	696	6	25
Future Vol, veh/h	500	27	102	696	6	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	77	90	90	80	90	90
Heavy Vehicles, %	7	2	2	5	2	2
Mvmt Flow	649	30	113	870	7	28
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	679	0	1760	664
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	1096	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	913	-	93	461
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	320	-
Platoon blocked, %	-	-		-		
Mov Cap-1 Maneuver	-	-	913	-	71	461
Mov Cap-2 Maneuver	-	-	-	-	71	-
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	243	-
Approach	EB	WB		NB		
HCM Control Delay, s	0	1.1		24.1		
HCM LOS	C					
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	223	-	-	913	-	
HCM Lane V/C Ratio	0.154	-	-	0.124	-	
HCM Control Delay (s)	24.1	-	-	9.5	0	
HCM Lane LOS	C	-	-	A	A	
HCM 95th %tile Q(veh)	0.5	-	-	0.4	-	

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM

2022 Build PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	557	7	26	635	26	100
Future Volume (vph)	557	7	26	635	26	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12
Grade (%)	0%			1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.893	
Flt Protected				0.998	0.990	
Satd. Flow (prot)	1841	0	0	1815	1592	0
Flt Permitted				0.998	0.990	
Satd. Flow (perm)	1841	0	0	1815	1592	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1201	
Travel Time (s)	13.7			18.1	32.8	
Peak Hour Factor	0.83	0.90	0.90	0.83	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Adj. Flow (vph)	671	8	29	765	29	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	679	0	0	794	140	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	68.8%			ICU Level of Service C		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	557	7	26	635	26	100
Future Vol, veh/h	557	7	26	635	26	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	83	90	90	83	90	90
Heavy Vehicles, %	3	2	2	4	2	2
Mvmt Flow	671	8	29	765	29	111
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	679	0	1498	675
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	823	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	913	-	135	454
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	913	-	128	454
Mov Cap-2 Maneuver	-	-	-	-	128	-
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	407	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		27.3	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	298	-	-	913	-	
HCM Lane V/C Ratio	0.47	-	-	0.032	-	
HCM Control Delay (s)	27.3	-	-	9.1	0	
HCM Lane LOS	D	-	-	A	A	
HCM 95th %tile Q(veh)	2.4	-	-	0.1	-	

2022 Build-out Conditions
Improved

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM

2022 Build IMP AM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	500	27	102	696	6	25
Future Volume (vph)	500	27	102	696	6	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	11	12
Grade (%)	0%			1%	0%	
Storage Length (ft)		0	125		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.994				0.892	
Flt Protected			0.950		0.990	
Satd. Flow (prot)	1769	0	1702	1800	1590	0
Flt Permitted			0.950		0.990	
Satd. Flow (perm)	1769	0	1702	1800	1590	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1179	
Travel Time (s)	13.7			18.1	32.2	
Peak Hour Factor	0.77	0.90	0.90	0.80	0.90	0.90
Heavy Vehicles (%)	7%	2%	2%	5%	2%	2%
Adj. Flow (vph)	649	30	113	870	7	28
Shared Lane Traffic (%)						
Lane Group Flow (vph)	679	0	113	870	35	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	46.9%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.1					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	500	27	102	696	6	25
Future Vol, veh/h	500	27	102	696	6	25
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	77	90	90	80	90	90
Heavy Vehicles, %	7	2	2	5	2	2
Mvmt Flow	649	30	113	870	7	28
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	679	0	1760	664
Stage 1	-	-	-	-	664	-
Stage 2	-	-	-	-	1096	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	913	-	93	461
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	320	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	913	-	81	461
Mov Cap-2 Maneuver	-	-	-	-	81	-
Stage 1	-	-	-	-	512	-
Stage 2	-	-	-	-	280	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.1		22.3	
HCM LOS					C	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	242	-	-	913	-	
HCM Lane V/C Ratio	0.142	-	-	0.124	-	
HCM Control Delay (s)	22.3	-	-	9.5	-	
HCM Lane LOS	C	-	-	A	-	
HCM 95th %tile Q(veh)	0.5	-	-	0.4	-	

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM
2022 Build IMP PM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	
Traffic Volume (vph)	557	7	26	635	26	100
Future Volume (vph)	557	7	26	635	26	100
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	11	12
Grade (%)	0%			1%	0%	
Storage Length (ft)		0	125		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.893	
Flt Protected			0.950		0.990	
Satd. Flow (prot)	1841	0	1702	1818	1592	0
Flt Permitted			0.950		0.990	
Satd. Flow (perm)	1841	0	1702	1818	1592	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1201	
Travel Time (s)	13.7			18.1	32.8	
Peak Hour Factor	0.83	0.90	0.90	0.83	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Adj. Flow (vph)	671	8	29	765	29	111
Shared Lane Traffic (%)						
Lane Group Flow (vph)	679	0	29	765	140	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	47.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	2.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	557	7	26	635	26	100
Future Vol, veh/h	557	7	26	635	26	100
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	83	90	90	83	90	90
Heavy Vehicles, %	3	2	2	4	2	2
Mvmt Flow	671	8	29	765	29	111
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	679	0	1498	675
Stage 1	-	-	-	-	675	-
Stage 2	-	-	-	-	823	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	913	-	135	454
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	431	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	913	-	131	454
Mov Cap-2 Maneuver	-	-	-	-	131	-
Stage 1	-	-	-	-	506	-
Stage 2	-	-	-	-	417	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.3		26.9	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	301	-	-	913	-	
HCM Lane V/C Ratio	0.465	-	-	0.032	-	
HCM Control Delay (s)	26.9	-	-	9.1	-	
HCM Lane LOS	D	-	-	A	-	
HCM 95th %tile Q(veh)	2.3	-	-	0.1	-	

2024 Build-out Conditions

Lanes, Volumes, Timings
10: Access C & Hambright Road

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	513	35	132	715	8	31
Future Volume (vph)	513	35	132	715	8	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12
Grade (%)	0%			1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.893	
Flt Protected				0.993	0.990	
Satd. Flow (prot)	1768	0	0	1795	1592	0
Flt Permitted				0.993	0.990	
Satd. Flow (perm)	1768	0	0	1795	1592	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1179	
Travel Time (s)	13.7			18.1	32.2	
Peak Hour Factor	0.77	0.90	0.90	0.79	0.90	0.90
Heavy Vehicles (%)	7%	2%	2%	5%	2%	2%
Adj. Flow (vph)	666	39	147	905	9	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	705	0	0	1052	43	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type: Unsignalized						
Intersection Capacity Utilization 87.4%				ICU Level of Service E		
Analysis Period (min) 15						

Intersection						
Int Delay, s/veh	1.6					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	513	35	132	715	8	31
Future Vol, veh/h	513	35	132	715	8	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	77	90	90	79	90	90
Heavy Vehicles, %	7	2	2	5	2	2
Mvmt Flow	666	39	147	905	9	34
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	705	0	1885	686
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	1199	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	893	-	78	447
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	286	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	893	-	52	447
Mov Cap-2 Maneuver	-	-	-	-	52	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	191	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.4		32.2	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	175	-	-	893	-	
HCM Lane V/C Ratio	0.248	-	-	0.164	-	
HCM Control Delay (s)	32.2	-	-	9.8	0	
HCM Lane LOS	D	-	-	A	A	
HCM 95th %tile Q(veh)	0.9	-	-	0.6	-	

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM
2024 Build PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	569	9	34	650	34	129
Future Volume (vph)	569	9	34	650	34	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	12	12	11	12
Grade (%)	0%			1%	0%	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.893	
Flt Protected				0.998	0.990	
Satd. Flow (prot)	1841	0	0	1816	1592	0
Flt Permitted				0.998	0.990	
Satd. Flow (perm)	1841	0	0	1816	1592	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1201	
Travel Time (s)	13.7			18.1	32.8	
Peak Hour Factor	0.83	0.90	0.90	0.83	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Adj. Flow (vph)	686	10	38	783	38	143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	696	0	0	821	181	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	78.4%			ICU Level of Service D		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	4.3					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	569	9	34	650	34	129
Future Vol, veh/h	569	9	34	650	34	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	-	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	83	90	90	83	90	90
Heavy Vehicles, %	3	2	2	4	2	2
Mvmt Flow	686	10	38	783	38	143
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	696	0	1550	691
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	859	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	900	-	125	445
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	415	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	900	-	116	445
Mov Cap-2 Maneuver	-	-	-	-	116	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	384	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		38.7	
HCM LOS					E	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	280	-	-	900	-	
HCM Lane V/C Ratio	0.647	-	-	0.042	-	
HCM Control Delay (s)	38.7	-	-	9.2	0	
HCM Lane LOS	E	-	-	A	A	
HCM 95th %tile Q(veh)	4.1	-	-	0.1	-	

2024 Build-out Conditions
Improved

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM
2024 Build IMP AM

	→	↘	↙	←	↖	↗
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations	↗		↖	↗	↖	
Traffic Volume (vph)	513	35	132	715	8	31
Future Volume (vph)	513	35	132	715	8	31
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	11	12
Grade (%)	0%			1%	0%	
Storage Length (ft)		0	125		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.993				0.893	
Flt Protected			0.950		0.990	
Satd. Flow (prot)	1768	0	1702	1800	1592	0
Flt Permitted			0.950		0.990	
Satd. Flow (perm)	1768	0	1702	1800	1592	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1179	
Travel Time (s)	13.7			18.1	32.2	
Peak Hour Factor	0.77	0.90	0.90	0.79	0.90	0.90
Heavy Vehicles (%)	7%	2%	2%	5%	2%	2%
Adj. Flow (vph)	666	39	147	905	9	34
Shared Lane Traffic (%)						
Lane Group Flow (vph)	705	0	147	905	43	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	49.8%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	1.5					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	513	35	132	715	8	31
Future Vol, veh/h	513	35	132	715	8	31
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	77	90	90	79	90	90
Heavy Vehicles, %	7	2	2	5	2	2
Mvmt Flow	666	39	147	905	9	34
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	705	0	1885	686
Stage 1	-	-	-	-	686	-
Stage 2	-	-	-	-	1199	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	893	-	78	447
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	286	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	893	-	65	447
Mov Cap-2 Maneuver	-	-	-	-	65	-
Stage 1	-	-	-	-	500	-
Stage 2	-	-	-	-	239	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		1.4		27.5	
HCM LOS					D	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	203	-	-	893	-	
HCM Lane V/C Ratio	0.213	-	-	0.164	-	
HCM Control Delay (s)	27.5	-	-	9.8	-	
HCM Lane LOS	D	-	-	A	-	
HCM 95th %tile Q(veh)	0.8	-	-	0.6	-	

Lanes, Volumes, Timings
10: Access C & Hambright Road

77 Beltway Industrial Site TTM

2024 Build IMP PM

						
Lane Group	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Volume (vph)	569	9	34	650	34	129
Future Volume (vph)	569	9	34	650	34	129
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900
Lane Width (ft)	12	12	11	12	11	12
Grade (%)	0%			1%	0%	
Storage Length (ft)		0	125		0	0
Storage Lanes		0	1		1	0
Taper Length (ft)			100		25	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Frt	0.998				0.893	
Flt Protected			0.950		0.990	
Satd. Flow (prot)	1841	0	1702	1818	1592	0
Flt Permitted			0.950		0.990	
Satd. Flow (perm)	1841	0	1702	1818	1592	0
Link Speed (mph)	45			45	25	
Link Distance (ft)	902			1193	1201	
Travel Time (s)	13.7			18.1	32.8	
Peak Hour Factor	0.83	0.90	0.90	0.83	0.90	0.90
Heavy Vehicles (%)	3%	2%	2%	4%	2%	2%
Adj. Flow (vph)	686	10	38	783	38	143
Shared Lane Traffic (%)						
Lane Group Flow (vph)	696	0	38	783	181	0
Sign Control	Free			Free	Stop	
Intersection Summary						
Area Type:	Other					
Control Type:	Unsignalized					
Intersection Capacity Utilization	50.7%			ICU Level of Service A		
Analysis Period (min)	15					

Intersection						
Int Delay, s/veh	4.2					
Movement	EBT	EBR	WBL	WBT	NBL	NBR
Lane Configurations						
Traffic Vol, veh/h	569	9	34	650	34	129
Future Vol, veh/h	569	9	34	650	34	129
Conflicting Peds, #/hr	0	0	0	0	0	0
Sign Control	Free	Free	Free	Free	Stop	Stop
RT Channelized	-	None	-	None	-	None
Storage Length	-	-	125	-	0	-
Veh in Median Storage, #	0	-	-	0	0	-
Grade, %	0	-	-	1	0	-
Peak Hour Factor	83	90	90	83	90	90
Heavy Vehicles, %	3	2	2	4	2	2
Mvmt Flow	686	10	38	783	38	143
Major/Minor	Major1	Major2		Minor1		
Conflicting Flow All	0	0	696	0	1550	691
Stage 1	-	-	-	-	691	-
Stage 2	-	-	-	-	859	-
Critical Hdwy	-	-	4.12	-	6.42	6.22
Critical Hdwy Stg 1	-	-	-	-	5.42	-
Critical Hdwy Stg 2	-	-	-	-	5.42	-
Follow-up Hdwy	-	-	2.218	-	3.518	3.318
Pot Cap-1 Maneuver	-	-	900	-	125	445
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	415	-
Platoon blocked, %	-	-	-	-	-	-
Mov Cap-1 Maneuver	-	-	900	-	120	445
Mov Cap-2 Maneuver	-	-	-	-	120	-
Stage 1	-	-	-	-	497	-
Stage 2	-	-	-	-	398	-
Approach	EB		WB		NB	
HCM Control Delay, s	0		0.4		37.6	
HCM LOS					E	
Minor Lane/Major Mvmt	NBLn1	EBT	EBR	WBL	WBT	
Capacity (veh/h)	284	-	-	900	-	
HCM Lane V/C Ratio	0.638	-	-	0.042	-	
HCM Control Delay (s)	37.6	-	-	9.2	-	
HCM Lane LOS	E	-	-	A	-	
HCM 95th %tile Q(veh)	4	-	-	0.1	-	

Queuing and Blocking Reports

2022 Build-out Conditions
Improved

Intersection: 10: Access C & Hambright Road

Movement	EB	WB	WB	NB	NB
Directions Served	R	L	T	L	R
Maximum Queue (ft)	5	63	746	26	38
Average Queue (ft)	0	21	174	4	14
95th Queue (ft)	4	52	762	18	33
Link Distance (ft)	822	1103	1103	1128	1128
Upstream Blk Time (%)	5				
Queuing Penalty (veh)	19				
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Intersection: 10: Access C & Hambright Road

Movement	WB	WB	NB	NB
Directions Served	L	T	L	R
Maximum Queue (ft)	251	1122	197	65
Average Queue (ft)	14	768	83	31
95th Queue (ft)	168	1494	265	55
Link Distance (ft)	1104	1104	1150	1150
Upstream Blk Time (%)		16		
Queuing Penalty (veh)		57		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

2024 Build-out Conditions
Improved

Intersection: 10: Access C & Hambright Road

Movement	WB	WB	NB	NB
Directions Served	L	T	L	R
Maximum Queue (ft)	66	972	34	47
Average Queue (ft)	21	215	4	15
95th Queue (ft)	53	798	21	35
Link Distance (ft)	1103	1103	1128	1128
Upstream Blk Time (%)	6			
Queuing Penalty (veh)	24			
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 10: Access C & Hambright Road

Movement	WB	WB	NB	NB
Directions Served	L	T	L	R
Maximum Queue (ft)	463	1108	245	82
Average Queue (ft)	33	588	107	37
95th Queue (ft)	295	1379	275	65
Link Distance (ft)	1104	1104	1150	1150
Upstream Blk Time (%)	0	11		
Queuing Penalty (veh)	0	36		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

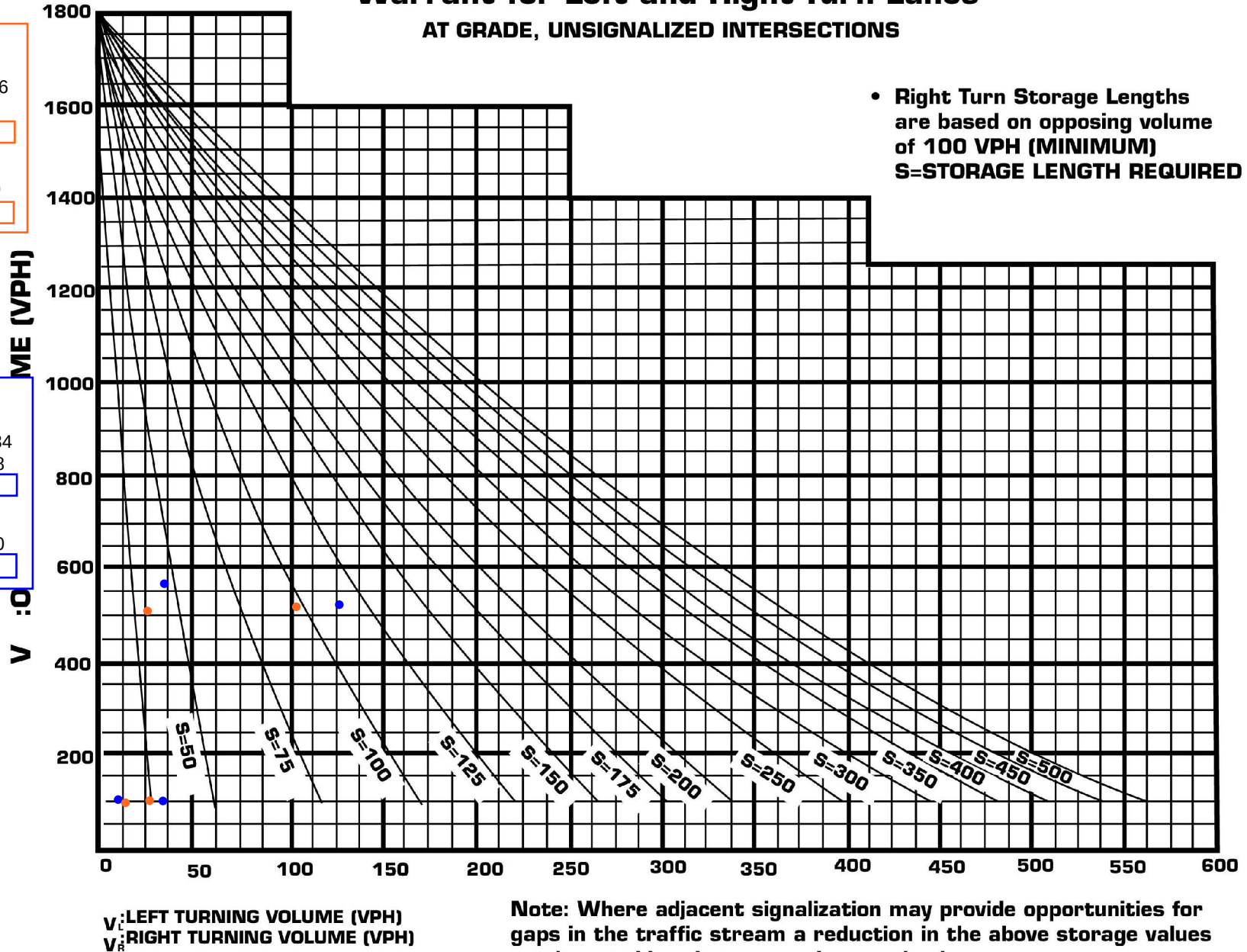
Auxiliary Turn-Lane Warrants

Warrant for Left and Right-Turn Lanes AT GRADE, UNSIGNALIZED INTERSECTIONS

2022 Build	
AM	PM
$V_{WBL} = 102$	$V_{WBL} = 26$
$V_o = 527$	$V_o = 577$
$S = 100'$	$S = 50'$
$V_{EBR} = 27$	$V_{EBR} = 7$
$V_o = 100$	$V_o = 100$
$S = 0'$	$S = 0'$

2024 Build	
AM	PM
$V_{WBL} = 132$	$V_{WBL} = 34$
$V_o = 548$	$V_o = 578$
$S = 125'$	$S = 50'$
$V_{EBR} = 35$	$V_{EBR} = 9$
$V_o = 100$	$V_o = 100$
$S = 50'$	$S = 0'$

- Right Turn Storage Lengths are based on opposing volume of 100 VPH (MINIMUM)
S=STORAGE LENGTH REQUIRED



**Town of Huntersville
Planning Board
November 6, 2023**

To: Town Board

From: Jesse James, Senior Planner

Date: November 6, 2023

Subject: Petition #R23-08 - Dearness Garden

EXPLAIN REQUEST:

Consider decision on Petition #R23-08, Dearness Gardens, a request by Ken Forster, to rezone six parcels totaling +/- 10.07 acres generally located at 13501 Old Statesville Road from existing Highway Commercial- Conditional District and Neighborhood Residential to Highway Commercial- Conditional District and Neighborhood Residential for boundary and site amendments.

ACTION RECOMMENDED:

Consider making a decision

FINANCIAL IMPLICATIONS:

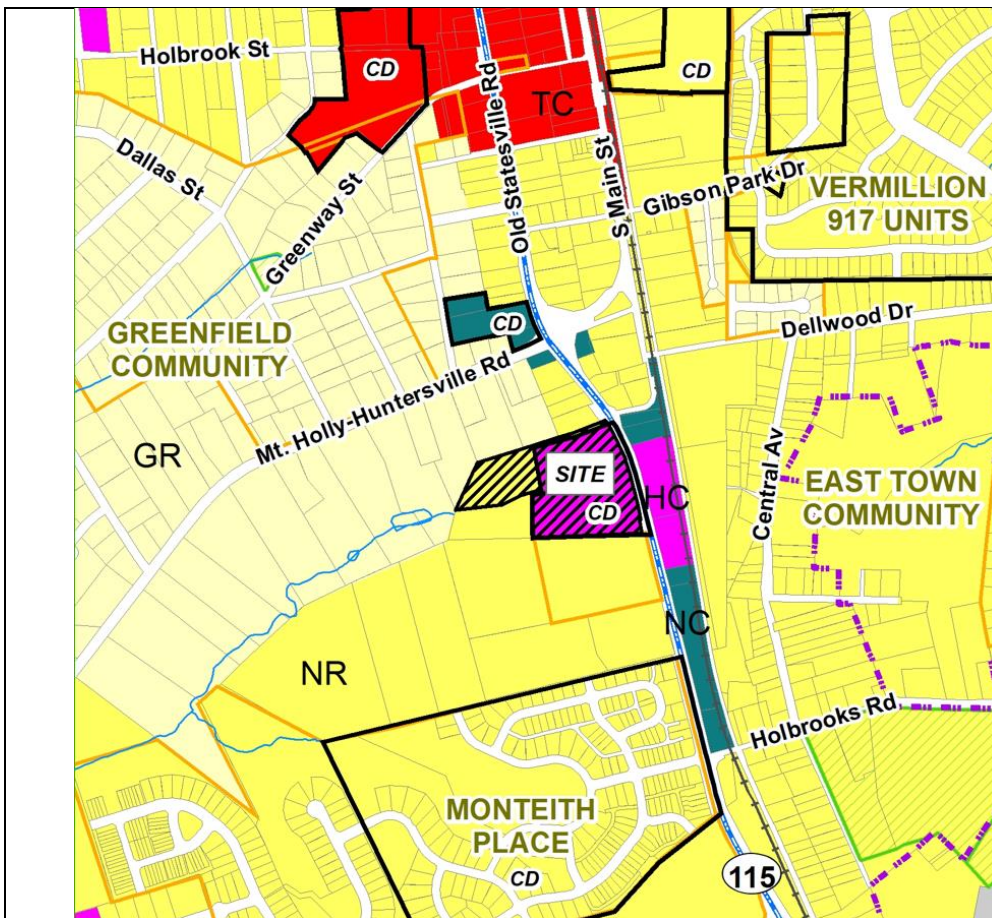
NA

ATTACHMENTS:

1. R23-08 Dearness Gardens Town Board Staff Report- Final
2. ToH_General_Application_-_Signed
3. General_Application_-_Signature_Addendum
4. Dearness_Gardens_Rezone_-_Plan_Set
5. Community Meeting Forms
6. Community Meeting Report
7. TIA_Determination_-_Dearness_Gardens_Expansion_-_7-7-23
8. Easement_No._1_-_2022149252
9. Easement_No._2_-_2022149252

Petition R23-08 Dearness Gardens

PART 1: PROJECT SUMMARY



Applicant: Ken Forster

Property Owner: Foster Investments INC, Dearness Properties LLC, Don & Carol Dancy

Property Address: 13501 Old Statesville Rd

Project Size: (+/-) 10.07 AC

Parcel Numbers: 01707207, 01707236, 01707237, 01707238, 01707239, 01707240

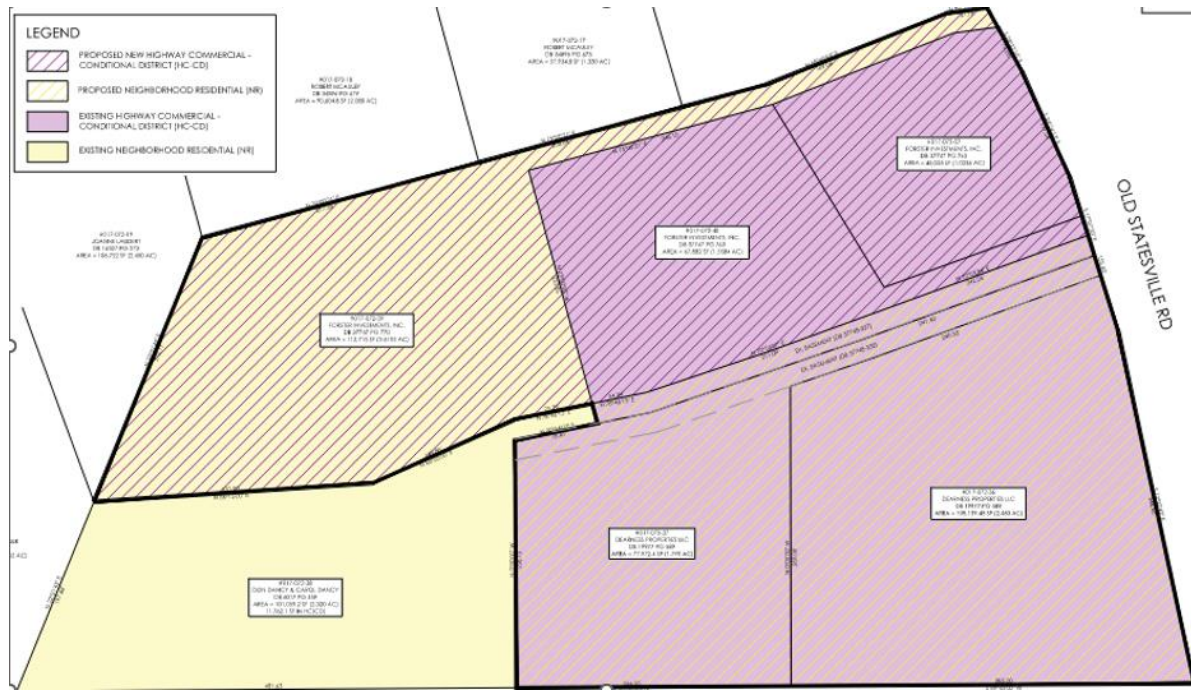
Current Zoning: Highway Commercial Conditional District (HC-CD)

Current Land Use: Commercial Retail

Proposed Zoning: Highway Commercial Conditional District (HC-CD) & Neighborhood Residential

Proposed Land Use: Commercial Retail

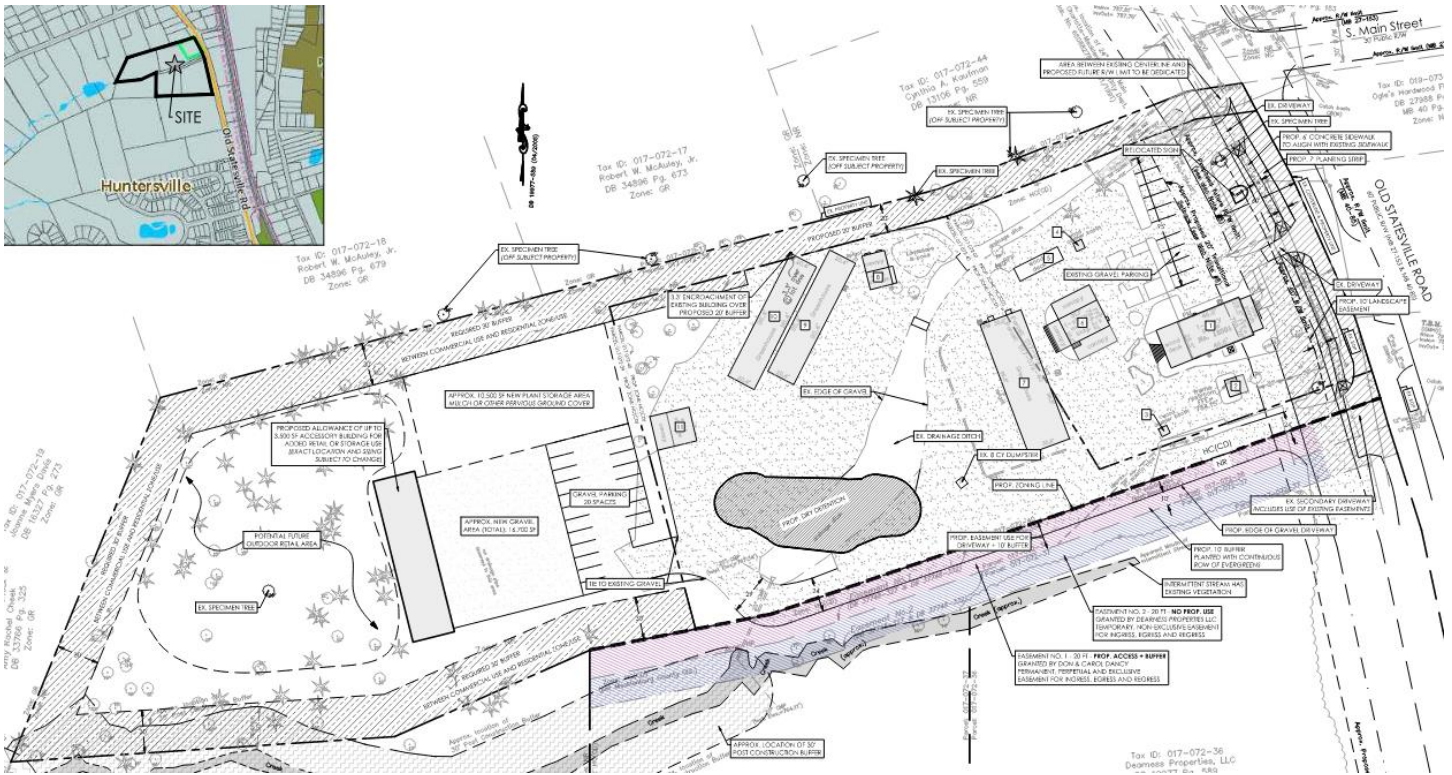
1. Purpose: Rezone Approximately 5.2025-acres at 13501 Old Statesville Road from Highway Commercial-Conditional District (HC-CD) to Highway Commercial-Conditional District and Neighborhood Residential (NR) for amendments to the zoning boundaries and for site plan changes from the original R93-01 Dearness Gardens rezoning.
2. The original R93-01 CD plan is comprised of parcels 01707207, 01707240, 01707237, 01707236, and a small portion of 01707238 which were rezoned to HC-CD to allow for the Dearness Gardens retail site. This Rezoning request changes those boundaries to add parcel 01707239 to the HC-CD Dearness Gardens site while converting 01707236, 01707237 and a portion of 01707238 back to Neighborhood Residential. (see below and on page 3 of the rezoning plans)



- Adjoining Zoning and Land Uses.
 - North: Neighborhood Residential, General Residential- Single Family Residential
 - South: Neighborhood Residential- Vacant
 - East: Highway 115- Highway Commercial
 - West: Neighborhood Residential- Single Family Residential
- A neighborhood meeting was held on Tuesday, August 1, 2023 and the questions asked by residents and the responses from the applicants are summarized in the Neighborhood Meeting Report.
- Notice for this rezoning petition was sent via letter to adjoining property owners; a legal ad placed in the Charlotte Observer; and posting of rezoning sign on Highway 115.

PART 2: REZONING/SITE PLAN

****Latest Site Plan has not been submitted****



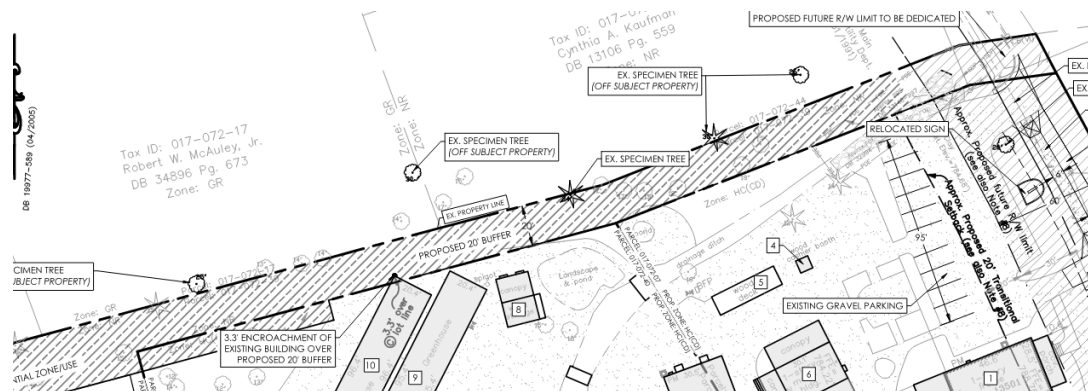
The proposed Conditional District Rezoning Plan is generally compliant with the Zoning Regulations with exception to three modification requests detailed herein. Significant elements of the plan include:

- The proposed plan includes up to 3,500 square feet of accessory building space for retail/storage use and approximately 10,500 square feet of new plant storage area on parcel 01707239. There is also a “potential future outdoor retail area” proposed to the rear of that parcel.

Staff Comment: Staff requests more specifics to these proposals. With the proposed building up to 3,500 square foot building being accessory in nature, what exactly does retail entail here? Article 8.11 allows accessory uses/structures that are clearly related to and incidental to the permitted principal use or structure on the lot.

- Modification request # 1** is for a portion of the required 30’ vegetated northern border buffer to be replaced with a 20’ buffer due to existing greenhouses, storage, and gravel encroaching on the 30-foot buffer area.

Staff Comment- Staff can recommend approval of this modification if the plan can show how landscaping, existing or not, is proposed in the area to meet the intent of the buffer yard. (see buffer request below)



- There are 2 existing easements along the southern border of the newly proposed Dearness Gardens site. “Easement One” is decided to remain for access to the back portion of the proposed expansion area for Dearness Gardens, while “Easement Two” is a temporary non-exclusive easement for existing ingress, egress, and regress.
- ~~Easement one is proposed to have an off-site 10-foot evergreen buffer. The zoning ordinance per article 7.5 requires a vegetated 30-foot buffer between HC Zoning and Residential Zoning. This is **modification request #2** to reduce that buffer and allow the 10-foot buffer and to be off-site.~~
Staff Comment: Staff does not recommend off-site buffering but is open to it in this unique situation if this section of the easement also includes a landscape easement for the final plat to capture this proposal.
- Zoning ordinance article 7.5 requires a vegetated 30-foot buffer between HC Zoning and a lesser intense use (in this case vacant land requested for Neighborhood Residential Zoning). **Modification request #2 (verbal***not updated on the site plan)** is to have full relief from this ordinance provision for the southern property line between the new Dearness Gardens southern boundary adjacent to parcel 01707237.
Staff Comment: Staff does not recommend full relief of the buffer requirement along this property boundary. The ordinance requires a full 30 feet but staff previously recommended approval of the requested 10-foot evergreen offsite buffer in a new easement. It is also worth noting that the original R93-01 Conditional Rezoning approved a 47-foot vegetated buffer to the adjacent property to the south. *see below*

- Page 5 of 10

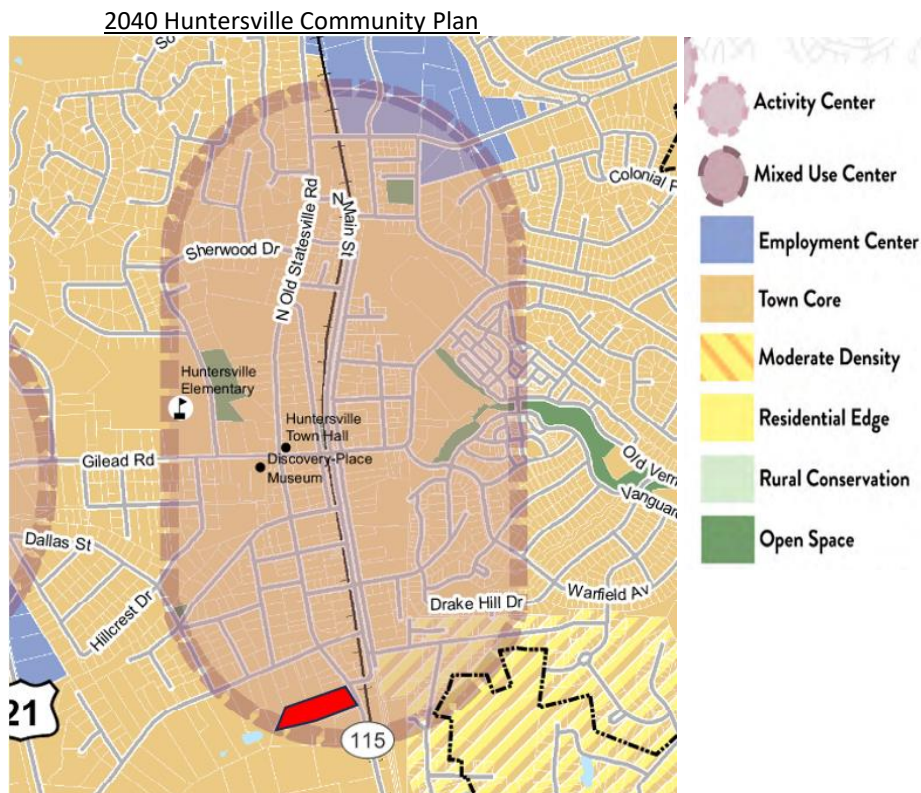
PART 3: TRANSPORTATION ISSUES

Traffic Impact Analysis (TIA)

The Application for Determination was submitted on 7/3/23 and is based on the 2.61 acres of additional development for a total of 5.19 acres. No TIA is required for the anticipated 282 additional daily trips.

PART 4: REZONING CRITERIA

Article 11.4.7(d) of the Zoning Ordinance states that “in considering any petition to reclassify property, the Planning Board in its recommendation and the Town Board in its decision shall take into consideration any identified relevant adopted land-use plans for the area including, but not limited to, comprehensive plans, strategic plans, district plans, area plans, neighborhood plans, corridor plans, and other land-use policy documents”.



STAFF COMMENT – Staff finds the proposed use/project is **consistent** with the following policies of the 2040 Huntersville Community Plan:

- LU 6.3: Small scale, neighborhood-serving commercial uses may be allowed in Town Core and Moderate Density areas specified on the Future Land Use Map (seen above) at key locations if designed in a context sensitive manner.
Staff Comment: This is a small-scale neighborhood serving use in the Town Core area and is consistent in character with the surrounding single family residential uses.
- EV 2.1: Promote and encourage local businesses, particularly small businesses.
Staff Comment: Dearness Gardens is a long-standing local business.

Article 11 Section 11.4.7(e) of the Zoning Ordinance states that: “in considering any petition to reclassify property the Planning Board in its recommendation and the Town Board in its decision should consider:

- 1. Whether the proposed reclassification is consistent with the overall character of existing development in the immediate vicinity of the subject property.**
STAFF COMMENT:
The proposed rezoning for Dearness Gardens is consistent with the overall character of the surrounding area. This proposal is for a boundary change and does not change the development’s character from its existing form.
- 2. The adequacy of public facilities and services intended to serve the subject property, including but not limited to roadways, transit service, parks and recreational facilities, police and fire protection, hospitals and medical services, schools, storm water drainage systems, water supplies, and wastewater and refuse disposal.**
STAFF COMMENT:
There is no indication this project will have a negative impact on public facilities and or services.
- 3. Whether the proposed reclassification will adversely affect a known archeological, environmental, historical or cultural resource.”**
STAFF COMMENT:
Planning staff has no indication that the request will adversely affect known archeological, environmental, historical, or cultural resources.

PART 5: STAFF RECOMMENDATION

In considering the proposed rezoning petition R23-08, Dearness Gardens, staff can recommend approval with the condition that modification request #2 is revised to add the original 10-foot evergreen buffer either on site or off at the south property line and that minor staff comments are addressed. The plan is consistent with the Huntersville 2040 Community Plan policies LU 6.3 and EV 2.1. Staff believes this rezoning plan is consistent in character with the surrounding land uses.

Conditions for Approval:

1. Modification request # 1 is for a portion of the required 30' vegetated northern border buffer to be replaced with a 20' buffer due to existing greenhouses, storage, and gravel encroaching on the 30-foot buffer area. Staff can recommend approval of this modification if the plan can show how landscaping, existing or proposed, meets the intent of the buffer yard.
2. Modification request #2 to take away in full the 30-foot vegetated buffer on the south property line adjacent to vacant land, requested for Neighborhood Residential Zoning, is not recommended by staff. This request also was not presented to the planning board as its original request was for a 10-foot offsite evergreen buffer in an existing permanent easement.
3. Modification request #3 to allow all existing and proposed commercial driveway and parking areas to remain in gravel form is recommended by staff due to the proposal matching the existing character of the site.
4. Modification request #4 to allow accessory structures as proposed on the entirety of the plan to exceed area (size) of the principal structure on the property is recommended by staff.

PART 6: PUBLIC HEARING COMMENTS

A Public Hearing was held on September 5, 2023. The details of that meeting can be seen and heard using this link to the recorded meeting. <https://www.youtube.com/watch?v=mPSBn7or1uQ&t=4424s> . This case starts at the 42-minute mark.

PART 7: PLANNING BOARD RECOMMENDATION * See modification #2- The request has changed since the PB Meeting*

The Planning Board met on September 26, 2023 with a 7-0 unanimous approval vote with a recusal by Jay Henson. S. Hensley made a Motion to recommend Approval of petition R23-08, Dearness Gardens. The amendment is consistent with the Huntersville 2040 Community Plan, specifically policies LU-6.3, EV-2.1, EV-2.2, EV-2.3. The proposed plan is consistent with the current land use and character of the surrounding properties. The Planning Board recommended approval is subject to the following conditions, modification request 1) for the northern boundary to reduced to 20' versus the required 30'; 2) **allow for an off-site buffer on the south side as noted on the plan**; 3) allow existing and proposed commercial driveway and parking areas to remain in gravel form; 4) allow more accessory square footage than principal square footage currently allows; 5) all other minor staff comments and redlines are addressed. It is reasonable and in the public interest to approve the rezoning plan because the rezoning is consistent with envisioned use and the development pattern set forth in the 2040 Community Plan. This rezoning allows the Town of Huntersville to support an existing small business that was first established on the current site in 1995 and further supports policy EV-2.1, "promote and encourage local businesses, particularly small businesses." G. Baber seconded the motion.

PART 8: TOWN BOARD RECOMMENDATION

Town Board Meeting is scheduled for October 16, 2023.

PART 9: ATTACHMENTS

1. Rezoning Application
2. Rezoning Plans

3. Neighborhood Meeting Report
4. TIA Determination
5. Easement Documents

PART 10: CONSISTENCY STATEMENT – R23-08 Dearness Gardens

Planning Department	Planning Board	Board of Commissioners
APPROVAL: In considering the proposed rezoning petition R23-08, Dearness Gardens, staff can recommend approval with the condition that modification request #2 is revised to add the original 10-foot evergreen buffer either on site or off at the south property line and that minor staff comments are addressed. The plan is consistent with the Huntersville 2040 Community Plan policies LU 6.3 and EV 2.1. Staff believes this rezoning plan is consistent in character with the surrounding land uses. Conditions for Approval: 1. Modification request # 1 is for a portion of the required 30' vegetated northern border buffer to be replaced with a 20' buffer due to existing greenhouses, storage, and gravel encroaching on the 30-foot buffer area. Staff can recommend approval of this modification if the plan can show how landscaping, existing or proposed, meets the intent of the buffer yard. 2. Modification request #2 to take away in full the 30-foot vegetated buffer on the south property line adjacent to vacant land, requested for Neighborhood Residential Zoning, is not recommended by	APPROVAL: APPROVAL: In considering the proposed rezoning application R23-08, Dearness Gardens, the Planning Board recommends approval based on the Plan being consistent with the Huntersville 2040 Community Plan, specifically policies LU-6.3, EV-2.1, EV-2.2, EV-2.3. The proposed plan is consistent with the current land use and character of the surrounding properties. The Planning Board recommended approval is subject to the following conditions, modification request 1) for the northern boundary to reduced to 20' versus the required 30'; 2) allow for an off-site buffer on the south side as noted on the plan; 3) allow existing and proposed commercial driveway and parking areas to remain in gravel form; 4) allow more accessory square footage than principal square footage currently allows; 5) all other minor staff comments and redlines are addressed. <u>It is reasonable and in the public interest to approve the Rezoning Plan because the rezoning is consistent with envisioned use and the development pattern set forth in the 2040 Community Plan. This rezoning allows the Town of Huntersville to support an existing small business that was first established on the current site in 1995 and further supports</u>	APPROVAL: APPROVAL: In considering the proposed rezoning application R23-08, Dearness Gardens, the Town Board recommends approval based on the Plan being consistent with <u>(insert applicable plan reference)</u>. <u>It is reasonable and in the public interest to approve the Rezoning Plan because... (Explain)</u>

staff. This request also was not presented to the planning board as its original request was for a 10-foot offsite evergreen buffer in an existing permanent easement. 3. Modification request #3 to allow all existing and proposed commercial driveway and parking areas to remain in gravel form is recommended by staff due to the proposal matching the existing character of the site. 4. Modification request #4 to allow accessory structures as proposed on the entirety of the plan to exceed area (size) of the principal structure on the property is recommended by staff. <u>It is reasonable and in the public interest to approve the Rezoning Plan because the rezoning is consistent with the envisioned use and development pattern set forth in the 2040 Community Plan.</u>	<u>policy EV-2.1, “promote and encourage local businesses, particularly small businesses”.</u>	
		DENIAL: In considering the proposed rezoning application R23-08, Dearness Gardens, the Town Board recommends denial based on the Plan being <u>(consistent OR inconsistent) with (insert applicable plan reference).</u> <u>It is not reasonable and in the public interest to approve the Rezoning Plan because... (Explain)</u>



General Application

INCOMPLETE SUBMISSIONS WILL NOT BE ACCEPTED. PLEASE CHECK ALL ITEMS CAREFULLY.

1. Application Type

Please indicate the type of application you are submitting. In addition to the application, the submission process for each application type can be found at <https://www.huntersville.org/528/Permits-Process>

- ☐ Change of Use
- ☐ Commercial Site Plan
- ☒ Conditional Rezoning
- ☐ General Rezoning
- ☐ Master Signage Program
- ☐ Special Use Permit
- ☐ Revision to
Original Project # _____
- ☐ Other _____

- SUBDIVISION CATEGORIES: Per the Huntersville Subdivision Ordinance
- ☐ Sketch Plan
 - ☐ Preliminary Plan
 - ☐ Final Plat (Includes Minor Subdivision)
 - ☐ Exempt Subdivision
 - ☐ Final Plat Revision
 - ☐ Farmhouse Cluster

2. Project Data

Date of Application 06/01/2023

Name of Project Dearness Gardens Rezone Phase # (if subdivision) _____

Project Address 13501 Old Statesville Rd

Parcel Identification Number(s) (PIN) 01707207, 01707236, 01707237, 01707238, 01707239, 01707240

Current Zoning District HC(CD) & NR Proposed District (for rezoning only) HC(CD) & NR

Property Size (acres) 10.07 AC Street Frontage (feet) 687 FT

Current Land Use COMMERCIAL RETAIL & UNDEVELOPED

Proposed Land Use(s) COMMERCIAL RETAIL

Is the project within Huntersville's corporate limits?

Yes ☒ No _____ If no, does the applicant intend to voluntarily annex? _____

3. Description of Request

Explain the nature of this request. If a separate sheet is necessary, please attach to this application.

This request is to amend the existing HC(CD) to bring the existing Dearness Gardens

development into compliance and include a new tract (01707239) while reverting the other

two tracts and part of a third tract back to NR (01707236, 01707237, part of 01707238)

4. Site Plan Submittals

Consult the particular type of *Review Process* for the application type selected above. These can be found at <https://www.huntersville.org/528/Permits-Process>.

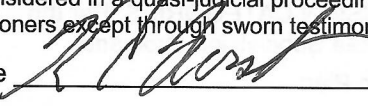
5. Outside Agency Information

Other agencies may have applications and fees associated with the land development process. The *Review Process* list includes plan documents needed for most town and county reviewing agencies. For major subdivisions, commercial site plans, and rezoning petitions please enclose a copy of the Charlotte-Mecklenburg Utility *Willingness to Serve* letter for the subject property.

6. Applicant

Printed Name Ken Forster Phone 704-361-1627
☐ Corporation ☐ Limited Liability Company ☐ Trust ☐ Partnership ☐ Other: _____

☒ By signature below, I hereby acknowledge, (as) on behalf of (circle one) the applicant my understanding this application will be considered in a quasi-judicial proceeding and that neither I, nor anyone on my behalf, may contact the Board of Commissioners except through sworn testimony at the public hearing. (Applicable for Special Use Permits and Subdivisions)

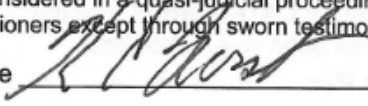
Signature  Printed Name: Ken Forster
Title Owner Email ken@dearnessgardens.net

Address of Applicant 13501 Old Statesville Rd, Huntersville, NC 28078

7. Property Owner (if different than applicant) Property Owner is Applicant

Printed Name Ken Forster Phone 704-361-1627
☐ Corporation ☐ Limited Liability Company ☐ Trust ☐ Partnership ☐ Other: _____

☒ By signature below, I hereby acknowledge, (as) on behalf of (circle one) the applicant my understanding this application will be considered in a quasi-judicial proceeding and that neither I, nor anyone on my behalf, may contact the Board of Commissioners except through sworn testimony at the public hearing. (Applicable for Special Use Permits and Subdivisions)

Signature  Printed Name: Ken Forster
Title Owner Email ken@dearnessgardens.net

Address of Property Owner 13501 Old Statesville Rd, Huntersville, NC 28078

* Property owner hereby grants permission to the Town of Huntersville personnel to enter the subject property for any purpose required in processing this application.

Every owner of each parcel included in this application, or the owner (s) duly authorized agent, must sign this application. If signed by an agent on behalf of the Owner, this application MUST be accompanied by a notarized Limited Power of Attorney signed by the property owner (s), specifically authorizing the agent to act on the owner (s) behalf in signing this application. Failure of each owner, or their duly authorized agent, to sign, or failure to include the authority of the agent signed by the property owner, will result in an INVALID APPLICATION. **If additional space is needed for signatures, attach the Town of Huntersville Signature Addendum Form.**

8. Development/Design Firm Contact Information

W&A Engineering	Jay Henson	704-875-1615	jhenson@waengineering.com
Development Firm	Name of Contact	Phone	Email

Design Firm	Name of Contact	Phone	Email
-------------	-----------------	-------	-------

Contact Information

Town of Huntersville	Phone:	704-875-7000
Planning Department	Fax:	704-992-5528
PO Box 664	Physical Address:	105 Gilead Road, Third Floor
Huntersville, NC 28070	Website:	https://www.huntersville.org/228/Planning-Department



General Application Owner/Applicant Signature Addendum

Application Information

Date of Application 06/01/2023 Application Number EPM #450113
Name of Project Dearness Gardens Rezone Phase # (if subdivision) _____

Additional Owners/Applicants: (Signature indicates intent that this page be affixed to Application.)

* ^ Printed Name Richard Strickland - Dearness Properties LLC Phone Number 757-798-3396
☐ Corporation ☒ Limited Liability Company ☐ Trust ☐ Partnership ☐ Other: _____

☒ By signature below, I hereby acknowledge, as/on behalf of (circle one) the applicant/owner (circle one) my understanding this application will be considered in a quasi-judicial proceeding and that neither I, nor anyone on my behalf, may contact the Board of Commissioners except through sworn testimony at the public hearing. (Applicable for Special Use Permits and Subdivisions)

Signature [Signature] Parcel ID(s): 01707236, 01707237
Title Owner Email r.strick51@gmail.com

Address of Property Owner/Applicant 4393 Point West Dr. Portsmouth, VA 23703

* ^ Printed Name Don Dancy & Carol Dancy Phone Number 704-875-1819
☐ Corporation ☐ Limited Liability Company ☐ Trust ☐ Partnership ☒ Other: _____

☒ By signature below, I hereby acknowledge, as/on behalf of (circle one) the applicant/owner (circle one) my understanding this application will be considered in a quasi-judicial proceeding and that neither I, nor anyone on my behalf, may contact the Board of Commissioners except through sworn testimony at the public hearing. (Applicable for Special Use Permits and Subdivisions)

Signature [Signature] Parcel ID(s): 01707238
Title Owner Email dancyrentals@yahoo.com

Address of Property Owner/Applicant P.O. Box 648 Huntersville NC 28070

* ^ Printed Name _____ Phone Number _____
☐ Corporation ☐ Limited Liability Company ☐ Trust ☐ Partnership ☐ Other: _____

☐ By signature below, I hereby acknowledge, as/on behalf of (circle one) the applicant/owner (circle one) my understanding this application will be considered in a quasi-judicial proceeding and that neither I, nor anyone on my behalf, may contact the Board of Commissioners except through sworn testimony at the public hearing. (Applicable for Special Use Permits and Subdivisions)

Signature _____ Parcel ID(s): _____
Title _____ Email _____

Address of Property Owner/Applicant _____

* Property owner hereby grants permission to the Town of Huntersville personnel to enter the subject property for any purpose required in processing this application.

^ If signed by an agent on behalf of the Owner, this petition MUST be accompanied by a Limited Power of Attorney signed by the property owner (s) and notarized, specifically authorizing the agent to act on the owner (s) behalf in signing this application. Failure of each owner, or their duly authorized agent, to sign, or failure to include the authority of the agent signed by the property owner, will result in an INVALID APPLICATION.

DEVELOPER:

FORSTER INVESTMENTS, INC.
13501 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
ATTN: KEN FORSTER
704.361.1627

OWNER:

FORSTER INVESTMENTS, INC.
13501 OLD STATESVILLE RD
HUNTERSVILLE, NC 28078
ATTN: KEN FORSTER
704.361.1627

ENGINEER:

W&A ENGINEERING
121 GILEAD RD
HUNTERSVILLE, NC 28078
ATTN: JAY HENSON, ASLA
704.875.1615

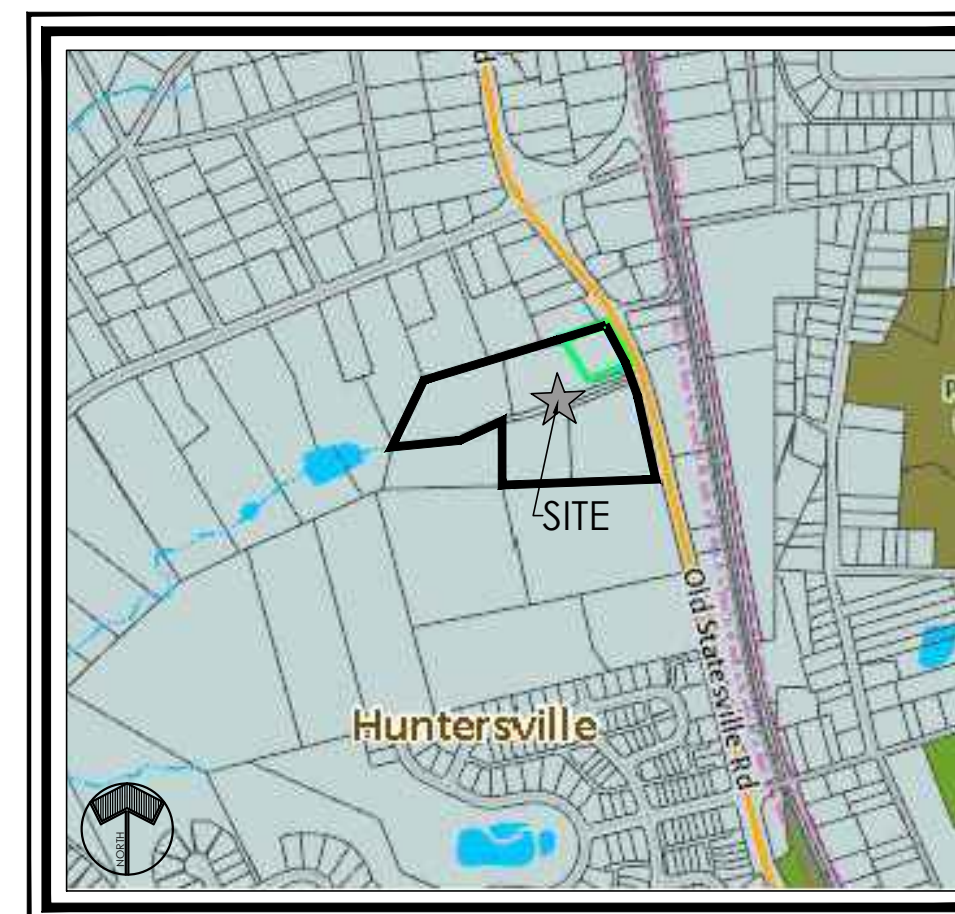
SURVEYOR:

A.G. ZOUTEWELLE SURVEYORS
1418 EAST FIFTH ST
CHARLOTTE, NC 28204
ATTN: ANDREW ZOUTEWELLE, PLS
704.372.9444

CONDITIONAL REZONE PLANS FOR DEARNESS GARDENS 13501 OLD STATESVILLE RD.

HUNTERSVILLE, NC
9.743-ACRE SITE
ISSUED 06/01/2023
HFI PROJECT # 222109
MUNICIPAL PROJECT #: 450113
REZONING CASE: R23-08

Sheet List Table	
Sheet Number	Sheet Title
Z01	COVER
Z02A	ORIGINAL REZONE PLAN
Z02B	PROPOSED REZONE DIAGRAM
Z03	SURVEY
Z04	SITE PLAN
Z05A	TREE SAVE & LANDSCAPE
Z05B	TREE SAVE & LANDSCAPE CONT.
Z06	GRADING



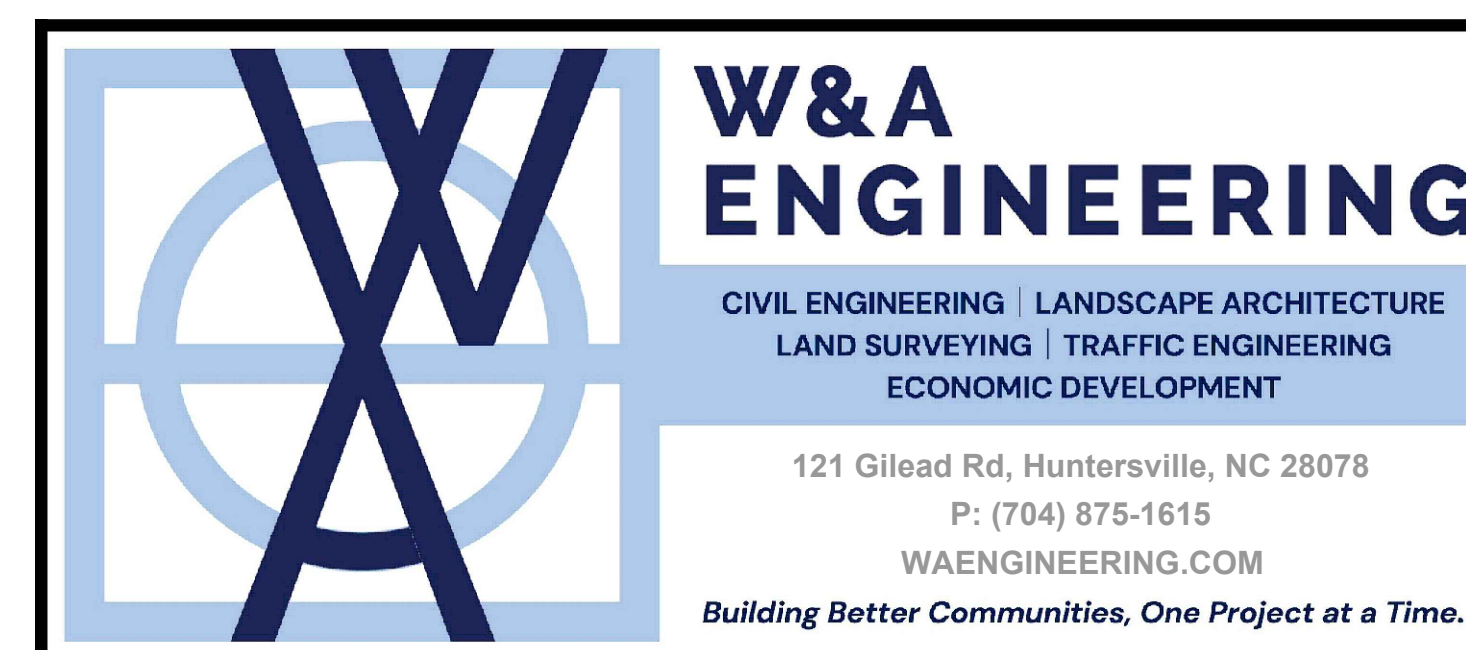
VICINITY MAP
NTS

REQUESTED MODIFICATIONS ARTICLE 7.5 - BUFFERS

1. THE PETITIONER REQUESTS A MODIFICATION TO THE REQUIRED 30' BUFFER ALONG THE NORTHERN PROPERTY LINE ABUTTING RESIDENTIALLY ZONED PROPERTY TO BE A **PARTIALLY REDUCED 20' BUFFER** THAT WILL RETAIN EXISTING VEGETATION AND SUPPLEMENT WITH NEW PLANTINGS WHERE REQUESTED BY TOWN OF HUNTERSVILLE STAFF, AND WILL MEET THE FULL 30' WIDTH REQUIREMENT PAST THE EXISTING POINT OF GREENHOUSE ENCROACHMENT.
2. THE PETITIONER REQUESTS A MODIFICATION TO THE REQUIRED 30' BUFFER ALONG THE SOUTHERN PROPERTY LINE WHERE IT ABUTS EXISTING RESIDENTIALLY ZONED PROPERTY AND PROPOSED RESIDENTIALLY ZONED PROPERTY TO BE REDUCED TO A **10' WIDTH BETWEEN PROPOSED EDGE OF DRIVEWAY AND THE ADJACENT PROPERTY LINE** UP TO THE POINT WHERE THE NEWLY ACQUIRED PARCEL (017-072-39) BEGINS. THE PROPOSED DRIVEWAY AND BUFFER WILL FALL COMPLETELY WITHIN THE PERMANENT EASEMENT (EASEMENT NO.1) GRANTED TO FORSTER INVESTMENTS BY DON & CAROL DANCY.

ARTICLE 6.1.G - OFF-STREET PARKING DESIGN

1. THE PETITIONER REQUESTS A MODIFICATION TO THE REQUIREMENT FOR ALL COMMERCIAL DRIVEWAY AND PARKING AREAS TO BE PAVED WITH ASPHALT, CONCRETE, OR BRICK PAVERS, THE PETITIONER PROPOSES A NEW **GRAVEL PARKING AREA** TO KEEP THE CHARACTER OF THE EXISTING DEVELOPMENT.

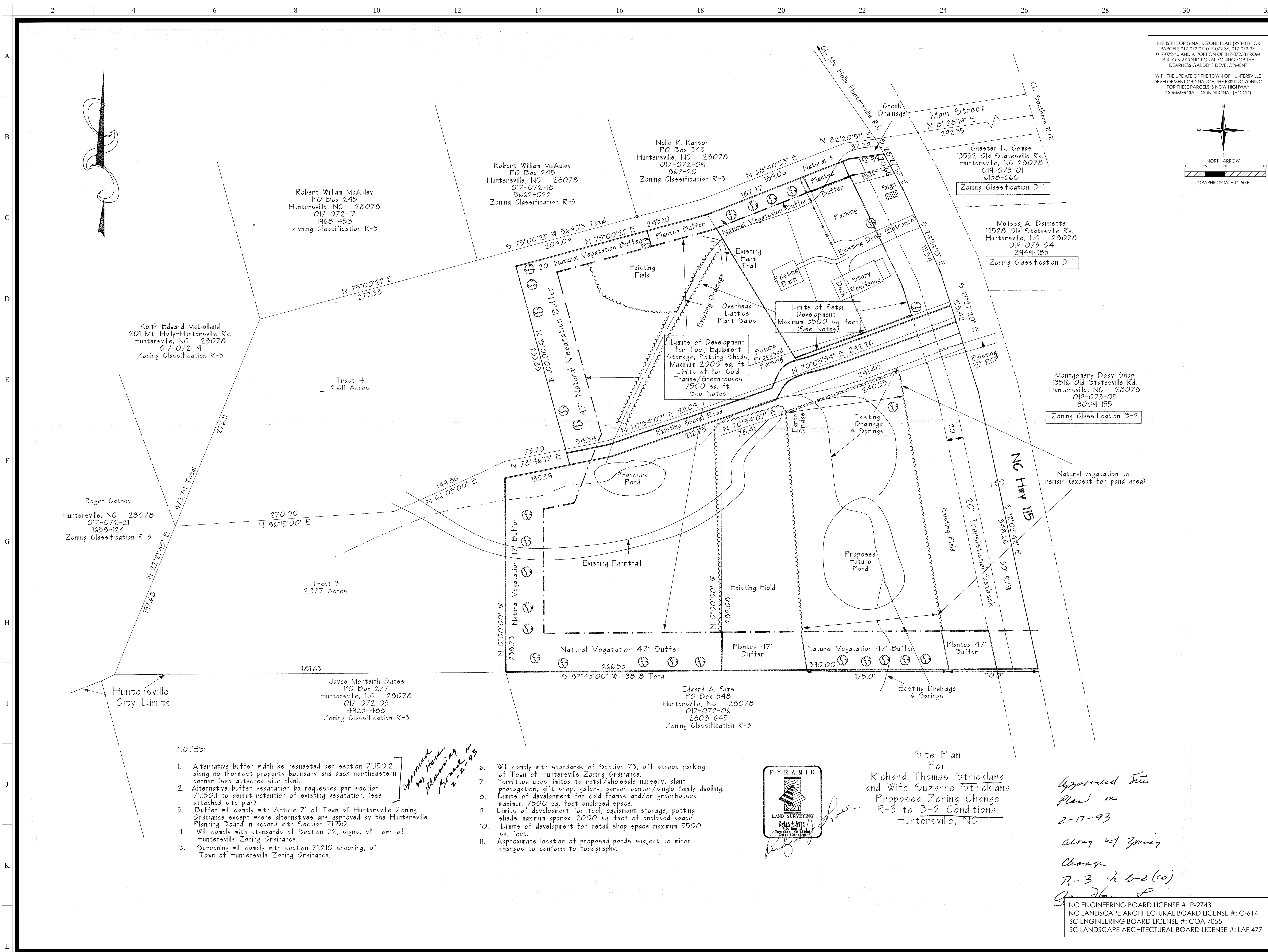


NC ENGINEERING BOARD LICENSE #: P-2743
NC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: C-614
SC ENGINEERING BOARD LICENSE #: COA 7055
SC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: LAF 477



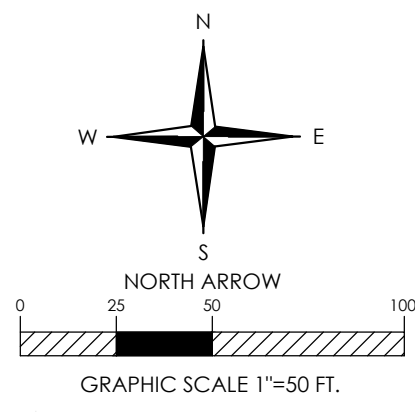
NOTE
EFFECTIVE 04/01/2023, HENSONFOLEY HAS
MERGED WITH W&A ENGINEERING.





THIS IS THE ORIGINAL REZONE PLAN [R93-01] FOR PARCELS 017-072-07, 017-072-36, 017-072-37, 017-072-40 AND A PORTION OF 017-072-38 FROM R-3 TO B-2 CONDITIONAL ZONING FOR THE DEARNESS GARDENS DEVELOPMENT

WITH THE UPDATE OF THE TOWN OF HUNTERSVILLE DEVELOPMENT ORDINANCE, THE EXISTING ZONING FOR THESE PARCELS IS NOW HIGHWAY COMMERCIAL - CONDITIONAL (HC-CD)



**W&A
ENGINEERING**

CIVIL ENGINEERING | LANDSCAPE ARCHITECTURE
LAND SURVEYING | TRAFFIC ENGINEERING
ECONOMIC DEVELOPMENT

121 GILEAD RD
HUNTERSVILLE, NC 28078
P: (704) 875-1615
WAENGINEERING.COM

ALL DRAWINGS SHALL REMAIN THE PROPERTY OF W&A ENGINEERING. THESE INSTRUMENTS OF SERVICE ARE TO BE USED ONLY FOR THIS SPECIFIC PROJECT. W&A ENGINEERING SHALL RETAIN ALL LEGAL RIGHTS TO THE USE OF THE INSTRUMENTS OF SERVICE AND SHALL RETAIN FULL PROTECTION UNDER UNITED STATES COPYRIGHT LAW.

DEARNESS GARDENS
MECKLENBURG COUNTY, NORTH CAROLINA
13501 OLD STATESVILLE RD. HUNTERSVILLE, NC 28078

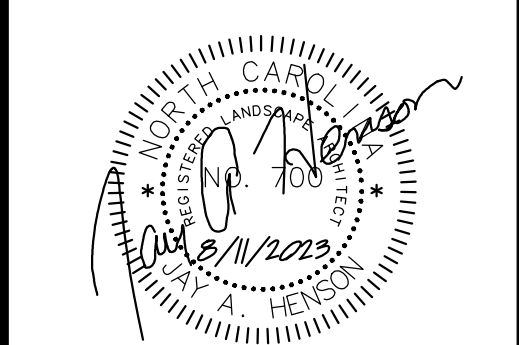
Know what's below.
Call before you dig.

REVISIONS

7/3/23	1ST EPM COMMENTS

INITIAL SUB. DATE: 6/1/2023

ISSUANCE DATE: 8/11/2023



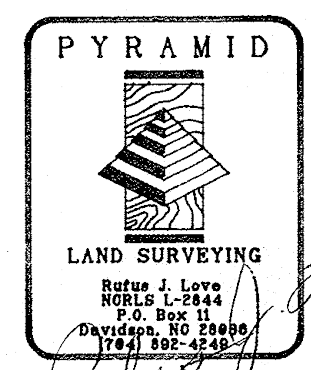
HFI PROJECT #: 222109

**ORIGINAL REZONE
PLAN**

Z02A

NOTES:

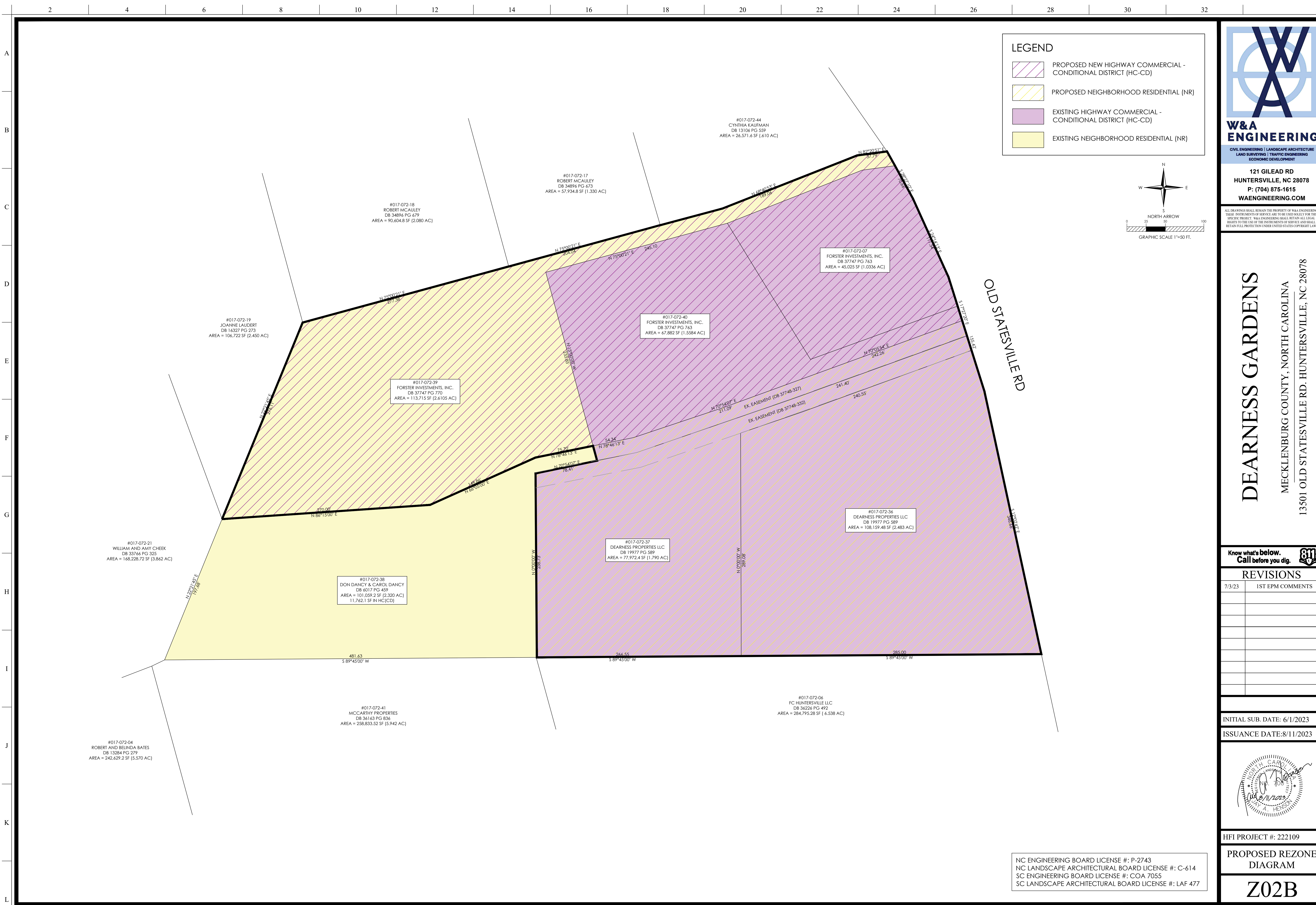
- Alternative buffer width be requested per section 71.150.2, along northernmost property boundary and back northeastern corner (see attached site plan).
- Alternative buffer vegetation be requested per section 71.150.1 to permit retention of existing vegetation. (see attached site plan).
- Buffer will comply with Article 71 of Town of Huntersville Zoning Ordinance except where alternatives are approved by the Huntersville Planning Board in accord with Section 71.150.
- Will comply with standards of Section 72, signs, of Town of Huntersville Zoning Ordinance.
- Screening will comply with section 71.210 screening, of Town of Huntersville Zoning Ordinance.
- Will comply with standards of Section 73, off street parking of Town of Huntersville Zoning Ordinance.
- Permitted uses limited to retail/wholesale nursery, plant propagation, gift shop, gallery, garden center/single family dwelling.
- Limits of development for cold frames and/or greenhouses maximum 7500 sq. feet enclosed space.
- Limits of development for tool, equipment storage, potting sheds maximum approx. 2000 sq. feet of enclosed space.
- Limits of development for retail shop space maximum 5500 sq. feet.
- Approximate location of proposed ponds subject to minor changes to conform to topography.



Site Plan
For
Richard Thomas Strickland
and Wife Suzanne Strickland
Proposed Zoning Change
R-3 to B-2 Conditional
Huntersville, NC

Approved Site Plan on 2-17-93 along w/ zoning change R-3 to B-2 (co) [Signature]

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LEGEND

- PROPOSED NEW HIGHWAY COMMERCIAL - CONDITIONAL DISTRICT (HC-CD)
- PROPOSED NEIGHBORHOOD RESIDENTIAL (NR)
- EXISTING HIGHWAY COMMERCIAL - CONDITIONAL DISTRICT (HC-CD)
- EXISTING NEIGHBORHOOD RESIDENTIAL (NR)

NORTH ARROW

GRAPHIC SCALE 1"=50 FT.



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DEARNESS GARDENS

MECKLENBURG COUNTY, NORTH CAROLINA

13501 OLD STATESVILLE RD, HUNTERSVILLE, NC 28078

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REVISIONS	
7/3/23	1ST EPM COMMENTS

INITIAL SUB. DATE: 6/1/2023

ISSUANCE DATE: 8/11/2023



HFI PROJECT #: 222109

**PROPOSED REZONE
DIAGRAM**

Z02B

NC ENGINEERING BOARD LICENSE #: P-2743
NC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: C-614
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GENERAL NOTES

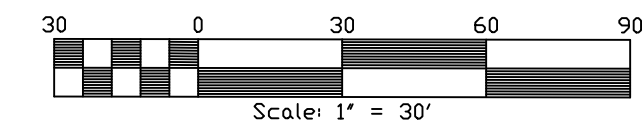
- Source of title for these properties is recorded in Deed Book 37747 Page 763 and Deed Book 37747 Page 770 in the Mecklenburg County Public Registry.
- Tax ID numbers of these properties are 017-072-07, 017-072-39; and 017-072-40 per Mecklenburg County GIS.
- Area of these properties are shown hereon as computed by coordinates.
- Per Mecklenburg County GIS, address of Parcel 017-072-07 is 13501 Old Statesville Road.
- Per Mecklenburg County GIS, this property is zoned NR (Neighborhood Residential district). See also Town of Huntersville Zoning Ordinance, Article 3.2.4. This survey does not reflect a complete zoning analysis. Future development of this property is subject to the approval of the Town of Huntersville.
- This property is NOT located within a designated flood hazard area per Flood Insurance Rate Map (FIRM) Community Panel No. 371046500K dated 11/16/2018 (property lies within Zone X, areas OUTSIDE the flood fringe area).
- Per Mecklenburg County GIS, the southwesterly portion of the subject property is located within a 30 foot Post Construction Buffer and a 35 foot Water Quality Buffer (SWM). Approximate location of these buffer lines are based on the measurement from the existing location of top of creek banks and scaled from Mecklenburg County GIS, as shown hereon. Actual buffer location is subject to confirmation by Town staffs.
- Underground utilities shown are based on observed surface indications only. There may be additional utilities not shown. Contact the NC ONECALL Utility Location Center at 1-800-632-4949 before any digging, design or excavation is begun.
- At the time of this survey, there are no proposed changes to the street right-of-way lines of Old Statesville Road to the knowledge of the undersigned. There were evidences of road and sidewalk construction at the intersection of Old Statesville Road and S. Main Street (concrete curb/gutter and concrete sidewalks are shown hereon).

I hereby certify to Forster Investment, Inc.: that this survey is based upon my best knowledge, information and belief; that this map was drawn under my supervision (deed description recorded in deed and map books as noted); that the boundaries not surveyed are indicated as dashed lines drawn from adjoining deed sources as shown hereon; that the ratio of precision or positional accuracy is 1:10,000; that this map meets the requirements of The Standards of Practice for Land Surveying in North Carolina (21 NCAC 56.1600). This map is not intended to meet G.S. 47-30 recording requirements. Actual ground elevations are within one-half contour interval across 90% of the contoured area.

Non-certified Electronic File

Andrew G. Zoutewelle 2-7-23 Date
N.C. PLS L-3098

TOPOGRAPHIC SURVEY
13501 OLD STATESVILLE ROAD
CHARLOTTE, MECKLENBURG COUNTY, N.C.
Prepared for Forster Investments, Inc.
Survey Date: January 11, 2023



A.G. ZOUTEWELLE
SURVEYORS
1418 East Fifth St., Charlotte, NC 28204
Phone: 704-372-2444 Fax: 704-372-9555
Firm Licensure Number: C-1054

Tax ID: 017-072-21
Joanne Myers Davis
DB 16327 Pg. 273
Zone: GR

Tax ID: 017-072-22
William Mathew Cheek &
Amy Rachel Cheek
DB 33766 Pg. 325
Zone: GR

Tax ID: 017-072-23
Approx. location of
30' Post Construction Buffer

Tax ID: 017-072-38
Don Dale Dancy & Carol M. Dancy
DB 6017 Pg. 459
Zone: NR

Tax ID: 017-072-39
Forster Investments, Inc.
DB 37747 Pg. 770
(Vacant Lot)
No address number per Mecklenburg County GIS.
Area: 113,715 s.f. (2.6105 ac.)

Tax ID: 017-072-40
Forster Investments, Inc.
DB 37747 Pg. 763 (Tract II)
Area: 67,882 s.f. (1.5584 ac.)
Zone: HC(CD)

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DB 19977 Pg. 589
Tract 1 (Parcel #1)
Zone: HC(CD)

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Tract 2 (Parcel #2)
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MB 40 Pg. 85
Zone: NC

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DB 13108 Pg. 559
Zone: NR

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DB 34896 Pg. 673
Zone: GR

Tax ID: 017-072-17
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Zone: HC(CD)

Tax ID: 017-072-37
Dearness Properties, LLC
DB 19977 Pg. 589
Tract 2 (Parcel #2)
Zone: HC(CD)

Tax ID: 019-073-01
Ogle's Hardwood Flooring, Inc.
DB 27988 Pg. 116
MB 40 Pg. 85
Zone: NC

Tax ID: 017-072-44
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DB 13108 Pg. 559
Zone: NR

Tax ID: 017-072-18
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DB 34896 Pg. 673
Zone: GR

Tax ID: 017-072-17
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DB 34896 Pg. 673
Zone: GR

Tax ID: 017-072-38
Don Dale Dancy & Carol M. Dancy
DB 6017 Pg. 459
Zone: NR

Tax ID: 017-072-39
Forster Investments, Inc.
DB 37747 Pg. 770
(Vacant Lot)
No address number per Mecklenburg County GIS.
Area: 113,715 s.f. (2.6105 ac.)

Tax ID: 017-072-40
Forster Investments, Inc.
DB 37747 Pg. 763 (Tract II)
Area: 67,882 s.f. (1.5584 ac.)
Zone: HC(CD)

Tax ID: 017-072-36
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Tract 1 (Parcel #1)
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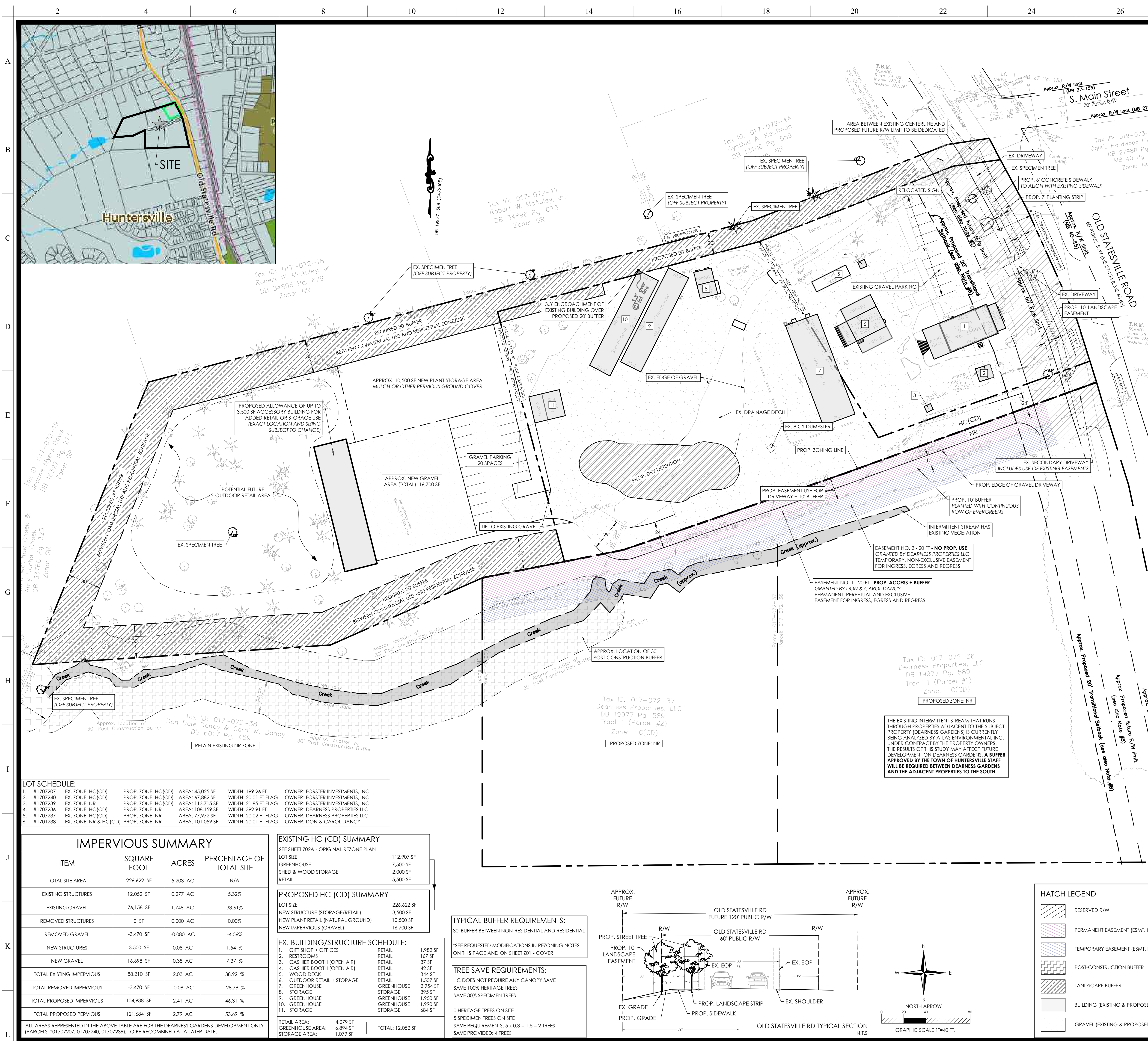
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REZONING NOTES

1. REZONING PETITION. THESE REZONING NOTES COMPRISE THE DEVELOPMENT STANDARDS ("DEVELOPMENT STANDARDS") ASSOCIATED WITH THE REZONING PETITION (THE "REZONING PETITION") FILED BY FORSTER INVESTMENTS, INC. ("PETITIONER"), APPROXIMATELY 9.47 ACRE COMBINED TRACTS OF LAND IDENTIFIED ON THIS SITE PLAN AS DEARNESS GARDENS (THE "PROJECT"). IN CONNECTION WITH TAX PARCEL #01707207, #01707236, #01707237, #01707238, AND #01707240 (THE "PROPERTY"), THE PURPOSE OF THE REZONING PETITION IS TO CONVERT THE ZONING CLASSIFICATION OF THE PROPERTY FROM THE EXISTING NEIGHBORHOOD RESIDENTIAL (NR) AND HIGHWAY COMMERCIAL - CONDITIONAL DISTRICT (HC-CD) TO A NEW HIGHWAY COMMERCIAL - CONDITIONAL DISTRICT (HC-CD) THAT INCLUDES THE NEWLY ACQUIRED PROPERTY (TAX PARCEL NUMBER #01707239) AND TO CONVERT THE PROPERTIES NOT OWNED BY THE PETITIONER TO NEIGHBORHOOD RESIDENTIAL (NR) PURSUANT TO THE PROVISIONS OF THE TOWN OF HUNTERSVILLE ZONING ORDINANCE (THE "ORDINANCE").

2. DEVELOPMENT STANDARDS. DEVELOPMENT OF THE PROPERTY WILL BE GOVERNED BY THESE DEVELOPMENT STANDARDS, WHICH ARE PART OF THE REZONING PETITION, AND THE APPLICABLE PROVISIONS OF THE ORDINANCE IN PLACE ON THE DATE OF SUBMITTAL OF THE REZONING PETITION, UNLESS THE REZONING PLAN ESTABLISHES MORE STRINGENT STANDARDS, OR UNLESS OTHERWISE NOTED ON THE REZONING PLAN OR IN THESE DEVELOPMENT STANDARDS. THE REGULATIONS ESTABLISHED UNDER THE ORDINANCE IN PLACE ON THE DATE OF SUBMITTAL OF THE REZONING PETITION FOR THE HIGHWAY COMMERCIAL - CONDITIONAL DISTRICT (HC-CD) ZONING GOVERN DEVELOPMENT OF THE PROPERTY AS SHOWN ON THE REZONING PLAN.

3. SCHEMATIC NATURE OF REZONING PLAN. THE PROPOSED IMPROVEMENTS SHOWN ON THE REZONING PLAN ARE SCHEMATIC IN NATURE. MINOR MODIFICATIONS TO THE PLAN MAY OCCUR DURING DESIGN, ENGINEERING AND CONSTRUCTION PHASES OF THE DEVELOPMENT. THE REMOVAL OF TREES AND VEGETATION TO ACCOMPLISH THE IMPROVEMENTS IS GENERALLY COMPLETED AS SHOWN ON THE REZONING PLAN.

4. VESTED RIGHTS. THIS REZONING PLAN IS A SITE-SPECIFIC DEVELOPMENT PLAN AND APPROVAL THEREOF CONSTITUTES VESTED RIGHTS IN THE REZONING PLAN PURSUANT TO THE PROVISIONS OF THE ORDINANCE. NOTWITHSTANDING ANY OTHER PROVISIONS OF THESE DEVELOPMENT STANDARDS, IF, AT SOME POINT, MODIFICATIONS ARE MADE TO THE ORDINANCE BY THE TOWN BOARD, PETITIONER MAY VOLUNTARILY AGREE TO APPLY SUCH MODIFICATIONS TO THE REZONING PLAN IN A MANNER CONSISTENT WITH THE ORDINANCE AS IT CHANGES FROM TIME TO TIME, AND WITHOUT PURSUING A REZONING. SUCH MODIFICATIONS TO THE ORDINANCE SHALL IN NO WAY IMPACT THE PETITIONER'S VESTED RIGHTS.

5. USE AND COMPATIBILITY. THE SITE IS LOCATED ALONG OLD STATESVILLE ROAD AND WAS PART OF A CONDITIONAL DISTRICT IN 1993 THAT INCLUDED ALL OF THE PARCELS THAT ARE CURRENTLY ZONED HC-CD, WHICH HAD THE PURPOSE OF ALLOWING THE DEVELOPMENT OF THE EXISTING DEARNESS GARDENS CENTER. THE ADJACENT LAND USES ARE PREDOMINANTLY SINGLE FAMILY OR UNUSED. THE APPLICANT IS ASKING TO MODIFY THE ORIGINAL REZONE CONDITIONS FOR THESE PARCELS TO BRING ALL EXISTING IMPROVEMENTS UP TO CURRENT TOWN OF HUNTERSVILLE STANDARDS ALONG WITH INCLUDING A NEW PARCEL (#01707239) FOR USE BY THE PETITIONER AND REMOVING THE PARCELS NOT OWNED BY THE PETITIONER (#01707236, #01707237, AND A PORTION OF #01707238). THE PETITIONER INTENDS TO COMBINE PARCELS #01707207, #01707240, AND #01707239 IN THE FUTURE.

6. PERMITTED USES. ARTICLE 3.2.7 - COMMERCIAL USE
A. "COMMERCIAL USE" INCLUDES RETAIL ESTABLISHMENTS, OFFICES, PROFESSIONAL AND PERSONAL SERVICES, LIGHT MANUFACTURING AND ASSEMBLY, ETC., AND EACH USE PERMITTED IN THE COMMERCIAL USE CATEGORY SHALL ALSO MEET ANY APPLICABLE CONDITIONS SET FORTH IN ARTICLE 3.2.7 - CONDITIONS FOR CERTAIN USES.
B. PARKING SHALL BE LOCATED TO THE REAR AND/OR SIDE OF THE BUILDING. SIDE YARD PARKING MAY OCCUPY NO MORE THAN 45% OF THE PRINCIPAL FRONTAGE LINE.
FRONTAGE LENGTH: 241' (INCLUDES #01707207 & FLAG OF #01707240 AND #01707239).
EXISTING PARKING LENGTH: 95' (39.4% OF FRONTAGE)

7. ACCESS. THE PRIMARY VEHICULAR ACCESS IS THE TWO SINGLE ACCESS DRIVEWAYS LOCATED ON OLD STATESVILLE ROAD AT THE NORTHERN END OF THE PROPERTY, WITH A SECONDARY VEHICULAR ACCESS POINT ALSO ON OLD STATESVILLE ROAD AT THE SOUTHERN PROPERTY LINE AND WITHIN THE ACCESS EASEMENTS ON LOTS #01707236 & #01707237. LISTED IN DB 37748-327.

8. AMENDMENT. IN THE EVENT ANY PORTION OF THE PROPERTY IS CONVEYED TO A THIRD PARTY, PETITIONER MAY REQUEST AN AMENDMENT TO THE REZONING PLAN WITHOUT THE WRITTEN CONSENT OF ANY OTHER OWNER OF ALL OR ANY PORTION OF THE PROPERTY UNLESS SUCH AMENDMENT CONSTITUTE A CHANGE IN THE BUILDING OR USE OF THE PORTION OF THE PROPERTY OWNED BY SUCH OWNER. PROVIDED PETITIONER PROVIDES FOR SUCH AMENDMENT RIGHT IN THE RECORDED PRIVATE RESTRICTIVE COVENANTS THAT GOVERN THE PROJECT. ALL REQUIREMENTS IN CONNECTION WITH THE AMENDMENT WILL BE CALCULATED ON THE PROPERTY AS A WHOLE IN THE SAME MANNER SUCH REQUIREMENTS WERE CALCULATED AT THE TIME OF THE INITIAL APPROVAL. THIS NOTE SHALL BE SHOWN ON THE FINAL PLAT WHEN RECORDED.

9. STORMWATER ELEMENTS. BUILT-UPON AREAS SHALL BE IN ACCORDANCE WITH THE ORDINANCE AS REQUIRED FOR THE HIGHWAY COMMERCIAL ZONING DISTRICT AND THE WATERSHED OVERLAY, AND STORMWATER DETENTION AND WATER QUALITY PROTECTION WILL BE INCLUDED AS REQUIRED.

10. MODIFICATION. DESIGN ELEMENTS THAT EXCEED THE REQUIREMENTS OF THE ORDINANCE HAVE BEEN INCLUDED IN THIS REZONING PLAN TO ACHIEVE EXCEPTIONAL DESIGN. TOWN BOARD APPROVAL OF THIS REZONING PLAN CONSTITUTES APPROVAL OF UNIQUE DESIGN ELEMENTS SHOWN ON THE REZONING PLAN THAT ARE MINOR MODIFICATIONS FROM THE ORDINANCE, INCLUDING, BUT NOT LIMITED TO:

1. THE PETITIONER REQUESTS A MODIFICATION TO THE REQUIRED 30' BUFFER ALONG THE NORTHERN PROPERTY LINE ABUTTING RESIDENTIALLY ZONED PROPERTY TO BE A **PARTIALLY REDUCED 20' BUFFER** THAT WILL RETAIN EXISTING VEGETATION AND SUPPLEMENT WITH NEW PLANTINGS WHERE REQUESTED BY TOWN OF HUNTERSVILLE STAFF, AND WILL MEET THE FULL 30' WIDTH REQUIREMENT PAST THE EXISTING POINT OF GREENHOUSE ENCROACHMENT.

2. THE PETITIONER REQUESTS A MODIFICATION TO THE REQUIRED 30' BUFFER ALONG THE SOUTHERN PROPERTY LINE WHERE IT ABUTS EXISTING RESIDENTIALLY ZONED PROPERTY AND PROPOSED RESIDENTIALLY ZONED PROPERTY TO BE REDUCED TO A **10' WIDTH BETWEEN PROPOSED EDGE OF DRIVEWAY AND THE ADJACENT PROPERTY LINE** UP TO THE POINT WHERE THE NEWLY ACQUIRED PARCEL (#01707239) BEGINS. THE PROPOSED DRIVEWAY AND BUFFER WILL FALL COMPLETELY WITHIN THE PERMANENT EASEMENT (EASEMENT NO.1) GRANTED TO FORSTER INVESTMENTS BY DON & CAROL DANCY.

3. THE PETITIONER REQUESTS A MODIFICATION TO THE REQUIREMENT FOR ALL COMMERCIAL DRIVEWAY AND PARKING AREAS TO BE PAVED WITH ASPHALT, CONCRETE, OR BRICK PAVERS. THE PETITIONER PROPOSES A NEW **GRAVEL PARKING AREA** TO KEEP THE CHARACTER OF THE EXISTING DEVELOPMENT.

SITE DATA TABLE

PARCEL ID	01707207, 01707239, 01707240
LOCATION	13501 OLD STATESVILLE RD, HUNTERSVILLE, NC 28078
JURISDICTION	HUNTERSVILLE
OWNER	FORSTER INVESTMENTS INC 4601 GRANITE HILLS DR DAVIDSON, NC 28036
EXISTING ZONING	ALL LOTS EXCEPT #01707239 - HC(CD). SEE R93-01 LOT #01707239 - NR
PROPOSED ZONING	LOTS 01707207, 01707240, 01707239 - HC(CD). PART OF LOTS 01707237 & 01707238 AS SHOWN - HC(CD). LOTS 01707236, 01707237, 01707238 - NR
TOTAL PARCEL AREA	5.2025 AC - 226,662 SF
LAND USE	EXISTING & PROPOSED: RETAIL/COMMERCIAL
MIN. FRONT / STREET SETBACK	15' BUILD-TO-LINE (HC-CD)
MIN. SIDE SETBACK	N/A (HC-CD)
MIN. REAR SETBACK	N/A (HC-CD)
MAX. BUILDING HEIGHT	36'
PARKING SPACES REQUIRED	1 SPACE PER 500 SF COMMERCIAL (NO STORAGE) 10,383 SF / 500 = 21 SPACES
PARKING SPACES PROVIDED	28 SPACES (GRAVEL PARKING, NO STRIPING)
FEMA MAP NUMBER	3710465000K
FEMA MAP DATE	11/16/2018
WATERSHED	MTN ISLAND LAKE PA-2
SOIL TYPES	MeB (15.5%), VoB (20.5%), EnD (64%)
TRASH COLLECTION	(1) DUMPSTER
BUFFER REQUIREMENTS	NORTH, WEST, SOUTH: NON-RES > 5' - 30' BUFFER

NC ENGINEERING BOARD LICENSE #: P-2743
NC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: C-614

W&A ENGINEERING

CIVIL ENGINEERING | LANDSCAPE ARCHITECTURE
LAND SURVEYING | TRAFFIC ENGINEERING
ECONOMIC DEVELOPMENT

121 GILEAD RD
HUNTERSVILLE, NC 28078
P: (704) 875-1615
WAENGINEERING.COM

ALL DRAWINGS SHALL REMAIN THE PROPERTY OF W&A ENGINEERING. THESE INSTRUMENTS OF SERVICE ARE TO BE USED ONLY FOR THIS SPECIFIC PROJECT. W&A ENGINEERING SHALL RETAIN ALL LEGAL RIGHTS TO THE USE OF THE INSTRUMENTS OF SERVICE AND SHALL RETAIN FULL PROTECTION UNDER UNITED STATES COPYRIGHT LAW.

DEARNESS GARDENS

MECKLENBURG COUNTY, NORTH CAROLINA
13501 OLD STATESVILLE RD, HUNTERSVILLE, NC 28078

Know what's below.
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REVISIONS

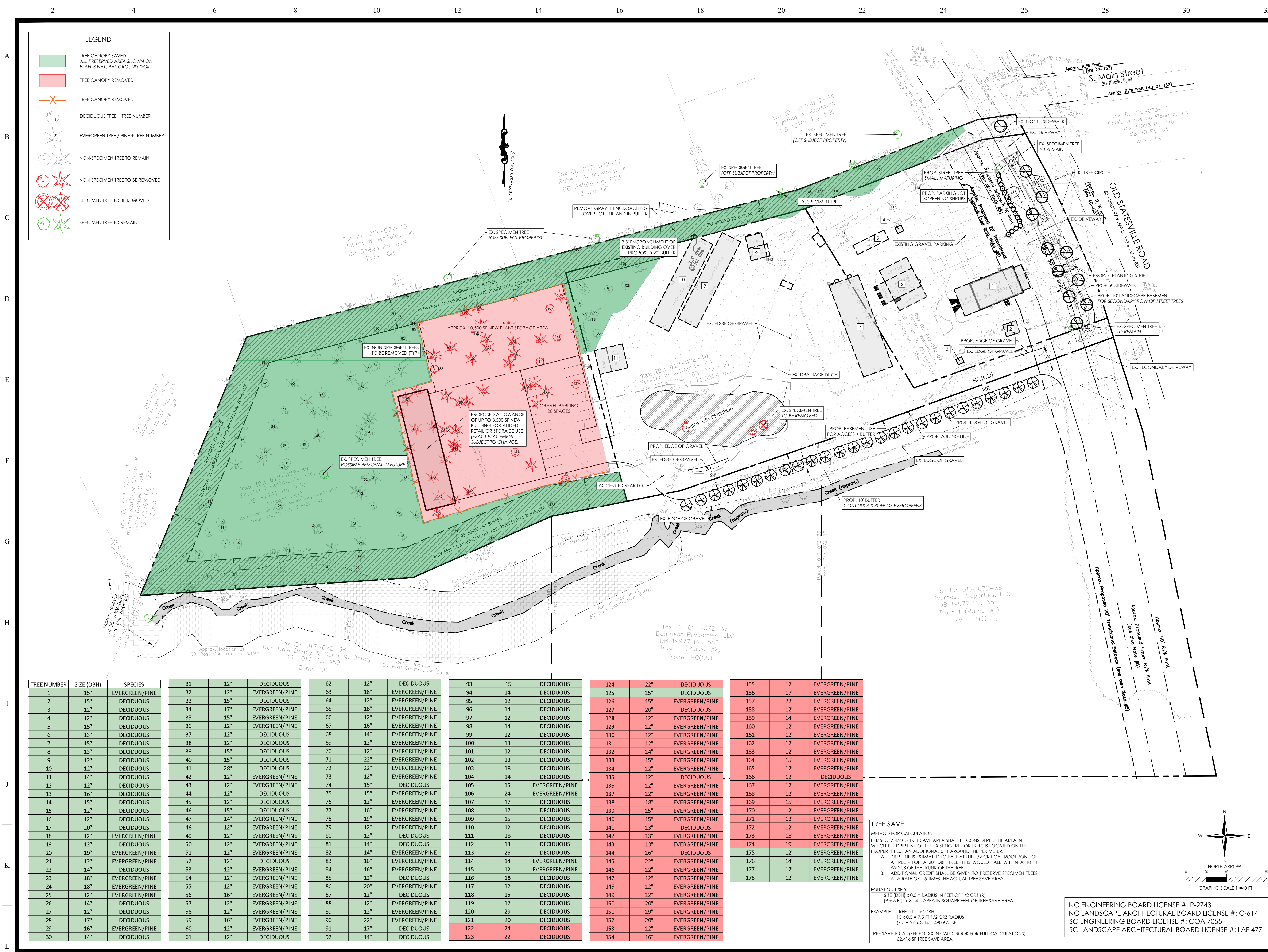
7/3/23	1ST EPM COMMENTS
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INITIAL SUB. DATE: 6/1/2023
ISSUANCE DATE: 8/11/2023

HFI PROJECT #: 222109

SITE PLAN

Z04



LEGEND

TREE CANOPY SAVED
ALL PRESERVED AREA SHOWN ON
PLAN IS NATURAL GROUND (SOIL)

TREE CANOPY REMOVED

TREE CANOPY REMOVED

DECIDUOUS TREE + TREE NUMBER

EVERGREEN TREE / PINE + TREE NUMBER

NON-SPECIMEN TREE TO REMAIN

NON-SPECIMEN TREE TO BE REMOVED

SPECIMEN TREE TO BE REMOVED

SPECIMEN TREE TO REMAIN

TREE NUMBER	SIZE (DBH)	SPECIES
1	15"	EVERGREEN/PINE
2	15"	DECIDUOUS
3	12"	DECIDUOUS
4	12"	DECIDUOUS
5	15"	DECIDUOUS
6	13"	DECIDUOUS
7	15"	DECIDUOUS
8	13"	DECIDUOUS
9	12"	DECIDUOUS
10	12"	DECIDUOUS
11	14"	DECIDUOUS
12	12"	DECIDUOUS
13	16"	DECIDUOUS
14	15"	DECIDUOUS
15	12"	DECIDUOUS
16	12"	DECIDUOUS
17	20"	DECIDUOUS
18	12"	EVERGREEN/PINE
19	12"	DECIDUOUS
20	19"	EVERGREEN/PINE
21	12"	EVERGREEN/PINE
22	14"	DECIDUOUS
23	18"	EVERGREEN/PINE
24	18"	EVERGREEN/PINE
25	12"	EVERGREEN/PINE
26	14"	DECIDUOUS
27	12"	DECIDUOUS
28	17"	DECIDUOUS
29	16"	EVERGREEN/PINE
30	14"	DECIDUOUS

31	12"	DECIDUOUS
32	12"	EVERGREEN/PINE
33	15"	DECIDUOUS
34	17"	EVERGREEN/PINE
35	15"	EVERGREEN/PINE
36	12"	EVERGREEN/PINE
37	12"	DECIDUOUS
38	12"	DECIDUOUS
39	15"	DECIDUOUS
40	15"	DECIDUOUS
41	28"	DECIDUOUS
42	12"	EVERGREEN/PINE
43	12"	EVERGREEN/PINE
44	12"	DECIDUOUS
45	12"	DECIDUOUS
46	15"	DECIDUOUS
47	14"	EVERGREEN/PINE
48	12"	EVERGREEN/PINE
49	12"	EVERGREEN/PINE
50	12"	EVERGREEN/PINE
51	12"	EVERGREEN/PINE
52	12"	DECIDUOUS
53	12"	EVERGREEN/PINE
54	12"	EVERGREEN/PINE
55	12"	EVERGREEN/PINE
56	16"	EVERGREEN/PINE
57	12"	EVERGREEN/PINE
58	12"	EVERGREEN/PINE
59	16"	EVERGREEN/PINE
60	12"	EVERGREEN/PINE
61	12"	DECIDUOUS

62	12"	DECIDUOUS
63	18"	EVERGREEN/PINE
64	12"	EVERGREEN/PINE
65	16"	DECIDUOUS
66	12"	EVERGREEN/PINE
67	16"	EVERGREEN/PINE
68	14"	EVERGREEN/PINE
69	12"	EVERGREEN/PINE
70	12"	EVERGREEN/PINE
71	22"	EVERGREEN/PINE
72	22"	DECIDUOUS
73	12"	EVERGREEN/PINE
74	15"	DECIDUOUS
75	15"	EVERGREEN/PINE
76	12"	DECIDUOUS
77	16"	EVERGREEN/PINE
78	19"	EVERGREEN/PINE
79	12"	EVERGREEN/PINE
80	12"	DECIDUOUS
81	14"	DECIDUOUS
82	14"	EVERGREEN/PINE
83	16"	EVERGREEN/PINE
84	16"	EVERGREEN/PINE
85	12"	DECIDUOUS
86	20"	EVERGREEN/PINE
87	12"	DECIDUOUS
88	12"	EVERGREEN/PINE
89	12"	EVERGREEN/PINE
90	22"	EVERGREEN/PINE
91	17"	DECIDUOUS
92	14"	DECIDUOUS

93	15'	DECIDUOUS
94	14"	DECIDUOUS
95	12"	DECIDUOUS
96	14"	DECIDUOUS
97	12"	DECIDUOUS
98	14"	DECIDUOUS
99	12"	DECIDUOUS
100	13"	DECIDUOUS
101	12"	DECIDUOUS
102	13"	DECIDUOUS
103	18"	DECIDUOUS
104	14"	DECIDUOUS
105	15"	EVERGREEN/PINE
106	24"	EVERGREEN/PINE
107	17"	DECIDUOUS
108	17"	DECIDUOUS
109	15"	DECIDUOUS
110	12"	DECIDUOUS
111	18"	DECIDUOUS
112	13"	DECIDUOUS
113	26"	DECIDUOUS
114	14"	EVERGREEN/PINE
115	12"	EVERGREEN/PINE
116	18"	DECIDUOUS
117	12"	DECIDUOUS
118	15"	DECIDUOUS
119	12"	DECIDUOUS
120	29"	DECIDUOUS
121	20"	DECIDUOUS
122	24"	DECIDUOUS
123	22"	DECIDUOUS

124	22"	DECIDUOUS
125	15"	DECIDUOUS
126	15"	EVERGREEN/PINE
127	20"	DECIDUOUS
128	12"	EVERGREEN/PINE
129	12"	EVERGREEN/PINE
130	12"	EVERGREEN/PINE
131	12"	EVERGREEN/PINE
132	14"	EVERGREEN/PINE
133	15"	EVERGREEN/PINE
134	12"	EVERGREEN/PINE
135	12"	DECIDUOUS
136	12"	EVERGREEN/PINE
137	12"	EVERGREEN/PINE
138	18"	EVERGREEN/PINE
139	15"	EVERGREEN/PINE
140	15"	EVERGREEN/PINE
141	13"	DECIDUOUS
142	13"	EVERGREEN/PINE
143	13"	EVERGREEN/PINE
144	16"	DECIDUOUS
145	22"	EVERGREEN/PINE
146	12"	EVERGREEN/PINE
147	12"	EVERGREEN/PINE
148	12"	EVERGREEN/PINE
149	12"	EVERGREEN/PINE
150	20"	EVERGREEN/PINE
151	19"	EVERGREEN/PINE
152	20"	EVERGREEN/PINE
153	12"	EVERGREEN/PINE
154	16"	EVERGREEN/PINE

155	12"	EVERGREEN/PINE
156	17"	EVERGREEN/PINE
157	22"	EVERGREEN/PINE
158	12"	EVERGREEN/PINE
159	14"	EVERGREEN/PINE
160	12"	EVERGREEN/PINE
161	12"	EVERGREEN/PINE
162	12"	EVERGREEN/PINE
163	12"	EVERGREEN/PINE
164	15"	EVERGREEN/PINE
165	12"	EVERGREEN/PINE
166	12"	DECIDUOUS
167	12"	EVERGREEN/PINE
168	12"	EVERGREEN/PINE
169	15"	EVERGREEN/PINE
170	12"	EVERGREEN/PINE
171	12"	EVERGREEN/PINE
172	12"	EVERGREEN/PINE
173	15"	EVERGREEN/PINE
174	19"	EVERGREEN/PINE
175	12"	EVERGREEN/PINE
176	14"	EVERGREEN/PINE
177	12"	EVERGREEN/PINE
178	12"	EVERGREEN/PINE

TREE SAVE:

METHOD FOR CALCULATION

PER SEC. 7.4.2.C - TREE SAVE AREA SHALL BE CONSIDERED THE AREA IN WHICH THE DRIP LINE OF THE EXISTING TREE OR TREES IS LOCATED ON THE PROPERTY PLUS AN ADDITIONAL 5 FT AROUND THE PERIMETER.

A. DRIP LINE IS ESTIMATED TO FALL AT THE 1/2 CRITICAL ROOT ZONE OF A TREE - FOR A 20" DBH TREE, THIS WOULD FALL WITHIN A 10 FT RADIUS OF THE TRUNK OF THE TREE

B. ADDITIONAL CREDIT SHALL BE GIVEN TO PRESERVE SPECIMEN TREES AT A RATE OF 1.5 TIMES THE ACTUAL TREE SAVE AREA

EQUATION USED

SIZE (DBH) x 0.5 = RADIUS IN FEET OF 1/2 CRZ (R)

(R + 5 FT)² x 3.14 = AREA IN SQUARE FEET OF TREE SAVE AREA

EXAMPLE: TREE #1 - 15" DBH

15 x 0.5 = 7.5 FT 1/2 CRZ RADIUS

(7.5 + 5)² x 3.14 = 490.625 SF

TREE SAVE TOTAL (SEE PG. XX IN CALC. BOOK FOR FULL CALCULATIONS)

62,416 SF TREE SAVE AREA

NC ENGINEERING BOARD LICENSE #: P-2743
NC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: C-614
SC ENGINEERING BOARD LICENSE #: COA 7055
SC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: LAF 477

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LAND SURVEYING | TRAFFIC ENGINEERING
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121 GILEAD RD
HUNTERSVILLE, NC 28078
P: (704) 875-1615
WAENGINEERING.COM

ALL DRAWINGS SHALL REMAIN THE PROPERTY OF W&A ENGINEERING. THESE INSTRUMENTS OF SERVICE ARE TO BE USED ONLY FOR THIS SPECIFIC PROJECT. W&A ENGINEERING SHALL RETAIN ALL LEGAL RIGHTS TO THE USE OF THE INSTRUMENTS OF SERVICE AND SHALL RETAIN FULL PROTECTION UNDER UNITED STATES COPYRIGHT LAW.

DEARNESS GARDENS

MECKLENBURG COUNTY, NORTH CAROLINA

13501 OLD STATESVILLE RD, HUNTERSVILLE, NC 28078

Know what's below.
Call before you dig.

REVISIONS	
7/3/23	1ST EPM COMMENTS

INITIAL SUB. DATE: 6/1/2023

ISSUANCE DATE: 8/11/2023



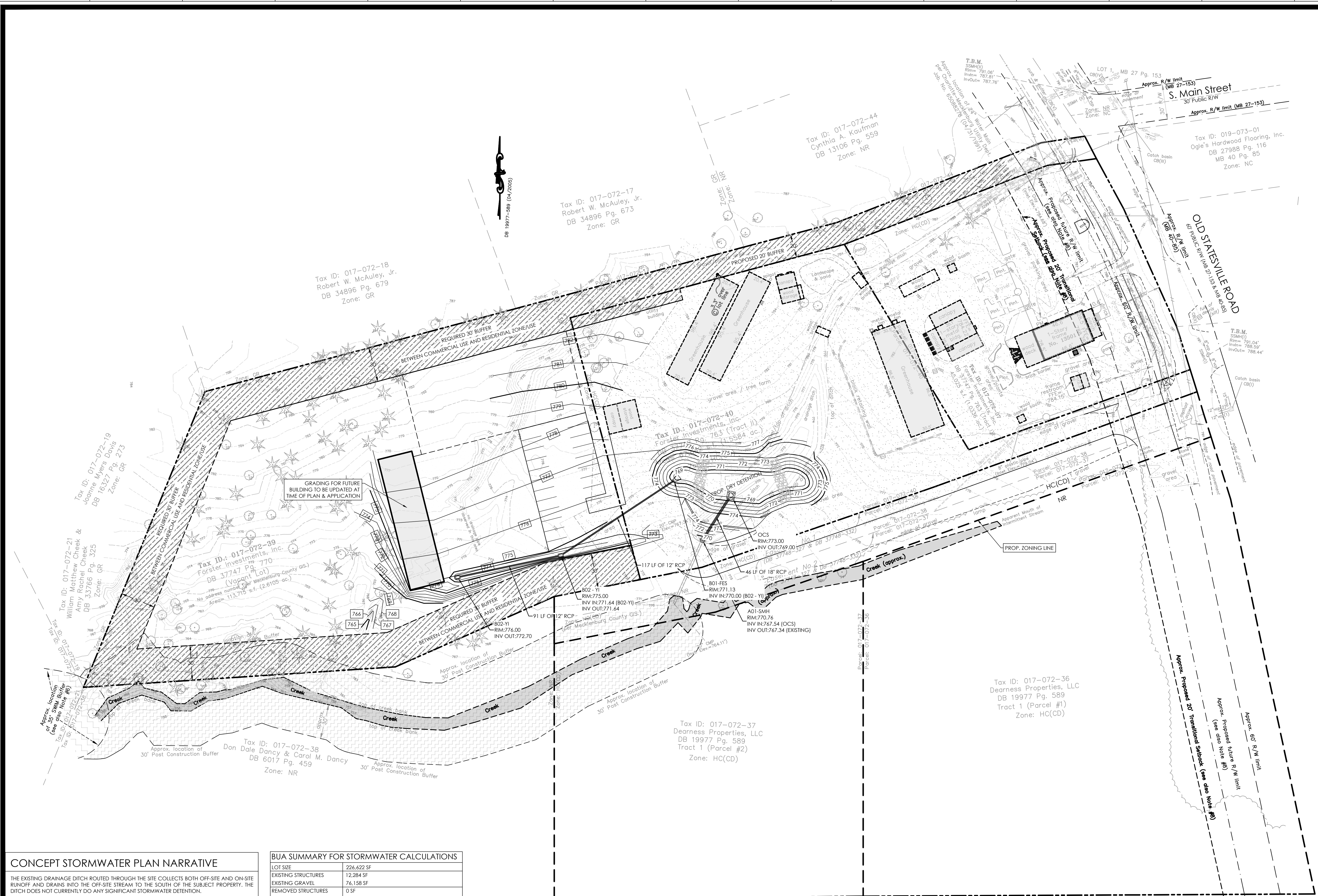
HFI PROJECT #: 222109

TREE SAVE &
LANDSCAPE CONT.

Z05B

2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32

A
B
C
D
E
F
G
H
I
J
K
L



CONCEPT STORMWATER PLAN NARRATIVE

THE EXISTING DRAINAGE DITCH ROUTED THROUGH THE SITE COLLECTS BOTH OFF-SITE AND ON-SITE RUNOFF AND DRAINS INTO THE OFF-SITE STREAM TO THE SOUTH OF THE SUBJECT PROPERTY. THE DITCH DOES NOT CURRENTLY DO ANY SIGNIFICANT STORMWATER DETENTION.

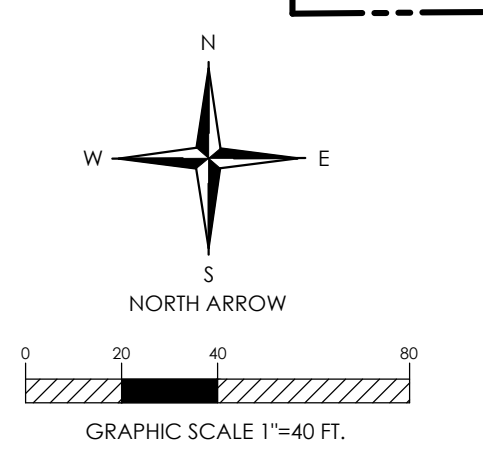
DETENTION OF THE STORMWATER IS REQUIRED TO CONTROL THE PEAK FLOW OF THE 2-YEAR AND 10-YEAR 24-HOUR STORM EVENTS WITH NO REQUIREMENT FOR WATER QUALITY MEASURES BASED ON THE BUILT-UPON AREA OF THE SITE AS A PERCENTAGE OF THE TOTAL SITE AREA.

AN EXTENDED DRY DETENTION POND HAS BEEN DESIGNED TO CONTROL THE PEAK FLOW OF THE 2-YEAR, 10-YEAR, AND 50-YEAR 24-HOUR STORM EVENTS TO MEET FREEBOARD REQUIREMENTS. A 10-FT WIDE EMERGENCY WEIR WAS ADDED FOR THE 50-YEAR EVENT.

THE EXISTING 20" CMP PIPE WILL REMAIN. THE FLARED END SECTION WILL BE REMOVED AND REPLACED WITH A STORM MANHOLE. A 18" RCP PIPE DISCHARGING FROM THE PROPOSED OUTLET STRUCTURE WILL BE CONNECTED TO THE STORM MANHOLE.

BUA SUMMARY FOR STORMWATER CALCULATIONS		
LOT SIZE	226,622 SF	
EXISTING STRUCTURES	12,284 SF	
EXISTING GRAVEL	76,158 SF	
REMOVED STRUCTURES	0 SF	
REMOVED GRAVEL	3,470 SF	
NEW STRUCTURES	3,500 SF	
NEW GRAVEL	16,698 SF	
TOTAL STRUCTURES	15,784 SF (6.96% LOT AREA)	
TOTAL GRAVEL	89,386 SF (39.44% LOT AREA)	
TOTAL BUA	105,170 SF (46.40% LOT AREA)	
ALL EXISTING STRUCTURES EXCEPT FOR THE WOOD STORAGE AT THE BACK OF PARCEL #017-072-40 AND ALL GRAVEL ON SITE HAVE BEEN IN PLACE SINCE AT LEAST 1996, WITH THE WOOD STORAGE STRUCTURE GOING IN BETWEEN 1996 AND 2001 PER MECKLENBURG AERIAL IMAGES.		

DETENTION BMP SUMMARY CHART						
STORM EVENT	PRE-DEVELOPMENT PEAK FLOW (CFS)	POST-DEVELOPMENT PEAK FLOW (CFS)	POST-ROUTING PEAK FLOW (CFS)	MAXIMUM ELEVATION (FT)	REQUIRED FREEBOARD (FT)	PROVIDED FREEBOARD (FT)
2 YR-24 HR	2.99	14.27	1.80	771.69	1.00	2.81
10 YR-24 HR	7.75	24.23	7.61	773.19	1.00	1.31
50 YR-24 HR	13.20	34.09	19.69	773.91	0.50	0.59



BUA SUMMARY FOR WATER QUALITY CALCULATIONS	
LOT SIZE	226,622 SF
BUA EXISTING PRE-2003	88,442 SF
TO BE REMOVED	3,470 SF
BUA ADDED POST-2003	20,198 SF (PROPOSED IN THIS PLAN)
CALCULATION: (20,198 SF / 226,622 SF) x 100 = 8.91% < 12% - NO WATER QUALITY PROTECTIVE MEASURES REQUIRED	



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DEARNESS GARDENS

MECKLENBURG COUNTY, NORTH CAROLINA
13501 OLD STATESVILLE RD, HUNTERSVILLE, NC 28078

Know what's below.
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REVISIONS

7/3/23	1ST EPM COMMENTS

INITIAL SUB. DATE: 6/1/2023

ISSUANCE DATE: 8/11/2023



HFI PROJECT #: 222109

GRADING

Z06

NC ENGINEERING BOARD LICENSE #: P-2743
NC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: C-614
SC ENGINEERING BOARD LICENSE #: COA 7055
SC LANDSCAPE ARCHITECTURAL BOARD LICENSE #: LAF 477

Community Meeting Notices

Project Name	Dearness Gardens Rezone
---------------------	-------------------------

Pursuant to Huntersville Subdivision Ordinance 6.320.3 a list of all persons and organizations contacted about the meeting shall be submitted to the Planning Department and incorporated into the application for this project.

The following persons and organizations were sent notices of the community meeting (first and last name or business name only):

First and Last Name	Parcel ID	Date Sent	Method Sent	Reason Sent
Melissa Barnette	1907304	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Robert & Belinda Bates	1707204	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
James Brown & John Putnam	1907315	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
William & Amy Cheek	1707221	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Don & Carol Dancy	1707238	7/24/2023	USPS Certified	Property Owner (SO 6.320.3(a))
Dearness Properties LLC	1707237	7/24/2023	USPS Certified	Property Owner (SO 6.320.3(a))
Terry & Rebecca Dewese	1907306	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
FC Huntersville LLC	1707206	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Forster Investments LLC	1707239	7/24/2023	USPS Certified	Property Owner (SO 6.320.3(a))
Charles Guignard	1907202	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Brian Hines	1907203	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Cynthia Kaufman	1707244	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
James & Sheli Kepple	1907204	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Joanne Laudert	1707219	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Roberty McAuley	1707217	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
McCarthy Properties LLC	1707241	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Myra & Morris Montgomery	1907305	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Ogle's Hardwood Flooring Inc	1907301	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
John & Elizabeth Pell	1707222	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
James & Susan Price	1707211	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Stephen & Andrea Swanick	1707220	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Juan Torres & Yolanda Martinez	1907205	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Michael & Lesa Westhafer	1707209	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Mayors Corner Homeowners Assn.	N/A	7/24/2023	USPS Certified	Neighborhood association, property woner association, and hom

Monteith Place Homeowners Assn.	N/A	7/24/2023	USPS Certified	Neighborhood association, property owner association, and home
Homeowners Assn-Magnolia Walk	N/A	7/24/2023	USPS Certified	Neighborhood association, property owner association, and home
Vermillion Community Assn Inc	N/A	7/24/2023	USPS Certified	Neighborhood association, property owner association, and home
Town of Huntersville	N/A	7/24/2023	USPS Certified	
Robert McAuley	1707218	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Dearness Properties LLC	1707236	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Ogle's Hardwood Flooring Inc	1907307	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
James & Sheli Kepple	1907209	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Robert McAuley	1707215	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))
Robert McAuley	1707230	7/24/2023	USPS Certified	Within 250 ft of petitioned property (SO 6.320.3(b,c,d,e))

[REPEATED OWNERS WERE SENT
ONLY ONE NOTIFICATION]

Community Meeting Attendance Log

Project Name:	DEARNESS GARDENS REZONE
Location of Meeting:	13501 OLD STATESVILLE RD, HUNTERSVILLE, NC 28078
Date:	8/11/2023
Time:	6 PM

Pursuant to Huntersville Subdivision Ordinance 6.320.3 a report including a roster of persons in attendance at the community meeting shall be submitted to the Planning Department and incorporated into the application for this project.

For the record of attendance, please list your first and last name:

1 Elizabeth Pell	26
2 JOHN PELL	27
3 Joanne Laudert	28
4 Jake Laudert	29
5 Jim Price	30
6 Stephen Swanick	31
7 WILLIAM CHEEK	32
8 AMY CHEEK	33
9 ISAAC CHEEK	34
10 Bob McAuley	35
11 David McAuley	36
12	37
13	38
14	39
15	40
16	41
17	42
18	43
19	44
20	45
21	46
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24	49
25	50

Community Meeting Report Dearness Gardens Rezoning EPM#450113

This community meeting report is being filed with the Town of Huntersville to bring the existing Dearness Gardens center up to code, bring in a newly purchased parcel, and clarify zoning boundaries between subject property and adjacent properties.

COMMUNITY MEETING ATTENDANCE AND LOCATION:

The meeting was held on Tuesday, August 1st, 2023 6:00 pm at 13501 OLD STATESVILLE RD, HUNTERSVILLE NC 28078 (Dearness Gardens). The petitioner (Ken Forster) was represented by Kristen James – W&A Engineering. The attendance for the community meeting was represented by Neighbors (John and Elizabeth Pell, Jake and Joanne Laudert, Jim Price, Stephen Swanick, William, Amy, and Isaac Cheek, and Bob and David McAuley) and Jesse James (Planning Staff).

SUMMARY OF PRESENTATION/DISCUSSION:

The petitioner introduced himself and gave a brief background on the property and the circumstances that led to the need to rezone and then introduced representative Kristen James. Kristen started the presentation with an explanation of what the conditional rezoning would entail for this property, going into depth on the different features proposed, including a detention pond, a new gravel parking area, a cleared area to transfer plant stock from the current off-site location, and the allowance for a new building. She then went over the requested modifications, including: a reduced buffer width along part of the northern property boundary and a reduced buffer width along the southern boundary where the existing driveway is partially on easements on adjacent property. Kristen explained that the final decision for the southern buffer was still being worked through and then she opened the meeting for questions.

Kristen handed out individual print-outs of the proposed site plan and had a large version available to use for ease of understanding. The neighbors asked whether the buffers, both required and modified, would be disturbed, to which Kristen explained that the buffers for this project would be undisturbed in order to preserve existing vegetation except for where one of the existing greenhouses encroaches 3.3 ft over the proposed reduced northern buffer. Kristen explained that this was included in the modification requests for the project and that the plans would include a note that existing vegetation would be retained and supplemented as required by the town planning staff.

Another question presented by a neighbor was whether there was a maximum height for whatever building may be built in the future. Kristen answered that the zoning district had a standard maximum height and that there was no modification request for this requirement, so any building would have to meet regular Highway Commercial standards. Ken Forster clarified that there were no plans for a new building at this time and that the allowance proposed in this plan was so that they would have the ability to add in the future without going through the rezone process again. Jesse James then said that if the building is labeled and considered an 'Accessory Building' then it would have a maximum height of 1 story.

The final concern that was brought up by a neighbor was the note included on the back of the plan that indicates existing treed area in the back of the lot as 'Potential Future Outdoor Retail Area'. They wanted to clarify whether this meant that the area could be completely cleared out. Kristen said that yes, that area could all be cleared if the owner needed more space but that no further impervious could be added if this was cleared because the pond is sized for the existing and proposed addition and that is it. She also emphasized that the required 30 ft buffers would be retained around the property boundaries in the back area if there is eventual clearing. Ken spoke up to say that it was similar to the plan for the building in that they had no plans to take out those trees but didn't want to limit what was possible in the future.

There was also general discussion (rather than specific questions) of the following items: how conditional zoning works, the original 1993 rezone plan and how the existing development does not meet the standards that were originally laid out, the treatment of adjacent lots to the south that were included in this rezone petition, the way tree preservation works, and the purpose and design of the new pond.

Kristen asked if anyone had any other questions and the community agreed that there were no other questions at this time. Kristen handed out business cards so that any attendees could reach out for a copy of the plans or if they came up with any other questions while Jesse went over the schedule for the rezone process. The meeting ended at 6:40 pm.



Traffic Impact Analysis (TIA) Application for Determination of TIA Need

Article 14.2 of the Zoning Ordinance requires that a Traffic Impact Analysis (TIA) be performed for any residential subdivision, multifamily site plan, or non-residential development, or portion thereof, which is expected to create one hundred (150) or more peak hour vehicle trips or 1,500 or more daily trips.

In order to determine whether a TIA will be required for your proposed development, please fill out the form below and submit to the Planning Department. A "Determination of TIA Need" will be made within 10 working days.

Applicant: W&A Engineering

Project Name: Dearness Gardens Rezone - R23-08

Project Address: 13501 Old Statesville Rd, Huntersville, NC 28078

Project Description (including square footage for each proposed land use):

The existing Dearness Gardens center wants to expand into the newly purchased back lot - proposing 10,500 SF of new plant storage area to move existing tree stock currently stored off-property onto the property, a new 20 space overflow gravel parking area, and an allowance for up to 3,500 SF new building area in the future.

Applicant

Printed Name Kristen James Phone 704-875-1615

☐ Corporation ☐ Limited Liability Company ☐ Trust ☐ Partnership ☐ Other: _____

Signature 

Title Designer Email KJames@WAEngineering.com

Contact Information

Town of Huntersville Engineering Department
(704) 766 - 2220

For Town Staff Use Only

Project File # _____

Date Submitted 7/3/23

Daily Trips Anticipated 282

Peak Hour Trips Anticipated AM 8 PM 21

TIA Required (Yes/No) No

Date of Determination: 7/7/23

Comments: Determination based on 2.61 acres of additional development for a total of 5.19 acres. Trips are only for the added development over the existing.

For Registration
Fredrick Smith
Register of Deeds
Mecklenburg County, NC
Electronically Recorded
2022 Oct 31 04:05 PM RE Excise Tax: \$ 0.00
Book: 37748 Page: 327 - 331 Fee: \$ 26.00
Instrument Number: 2022149252

Fredrick Smith

Drawn By and Mail To: Prosser D. Carnegie, PO Box 363, Davidson, NC 28036

STATE OF NORTH CAROLINA

GRANT of EASEMENT

COUNTY OF MECKLENBURG

THIS GRANT OF EASEMENT, entered into this 19th day of August, 2022, by and between Don Dale Dancy and wife, Carol M. Dancy, (hereinafter "Dancy"), Forster Investments, Inc., ("Forster"), Dancy and Forster, sometimes referred to as "Party" or "Parties".

W I T N E S S E T H

WHEREAS, Dancy is the owner of real property containing approximately 2.327 acres off of NC Hwy 115, (Old Statesville Road), Huntersville, N.C. and described as tax code parcel number 017-072-38 and described as follows:

BEGINNING at a PK Nail located in the center line of North Carolina Highway 115, said iron being distant the following courses and distances from the point where the center line of North Carolina Highway 115 intersects with the line of Edward A. Sims, (now or formerly), (1) N. 12-02-42 W., 348.66 feet, and (2) N. 17-27-26 W., 96.58 feet, and runs thence from said BEGINNING, S. 70-05-54 W., 242.26 feet to an iron; thence, S. 70-54-07 W., 211.09 feet to an iron; thence, S. 78-46-13 W., 130.04 feet to an iron; thence, S. 66-05 W., 149.86 feet to an iron; thence, S. 86-15 W., 270.00 feet to an iron located in the Edna B. Cross, (now or formerly), line; thence with the Cross line, S. 22-21-45 W., 197.68 feet to an iron located in the Joyce M. Bates, (now or formerly), line; thence with the Bates line, N. 89-45 E., 481.63 feet to an iron; thence, N. 00-00 E., 238.73 feet to an iron; thence, N. 78-46-13 E., 135.39 feet to on iron; thence, N. 70-54-07 E., 212.75 feet to an iron; thence, N. 70-05-54 E., 241.40 feet to an iron located in the center line of North Carolina Highway 115; thence, with said center line, N. 17-27-26 W., 20.02 feet to the point or place of BEGINNING, the same containing 2.327 acres as shown on Tract 3 of division survey by Rufus J. Love, N.C.R.L.S., dated April 27, 1989.

; and,

WHEREAS, Forster has purchased two parcels of real estate identified as tax code parcel number 017-072-07 and 017-072-40 in Deed Book 37747, Page 760, recorded in the Mecklenburg County Public Registry, said property being adjacent to the Dancy parcel and Forster desires to establish a more formal and specific easement for use of a portion of tax code parcel number 017-072-38; and

Submitted electronically by "Prosser D. Carnegie Attorney at Law"
in compliance with North Carolina statutes governing recordable documents
and the terms of the submitter agreement with the Mecklenburg County Register of Deeds.

WHEREAS, Forster desires to be granted a permanent, perpetual and exclusive easement for ingress, egress and regress, installing and maintaining any and all utilities or stormwater requirements; and,

WHEREAS, Dancy desires to grant to Forster a permanent, perpetual and exclusive, except for the rights herein stated, easement upon and over their property upon which the hereinafter described easement is located and for Dancy to retain the rights to also continue to use the easement for ingress, egress and regress, installing and maintaining any and all utilities or stormwater requirements; and

NOW, THEREFORE, in consideration of the sum of Ten (\$10.00) Dollars, the receipt and adequacy of which are hereby acknowledged, consented and agreed upon, and other good and valuable considerations, the Parties agree as follows:

1. That Dancy for themselves, their heirs, successors and assigns do hereby give, grant and convey to Forster Investments, Inc., its successors and assigns a permanent, exclusive and perpetual right and easement for the purposes of ingress, egress and regress, installing and maintaining any and all utilities or stormwater requirements. Said easement is described as follows:

See attached Exhibit A

It is the express intent of the Parties that the easement granted herein is permanent, perpetual and exclusive to Forster and its heirs, successors and assigns.

To have and to hold said right and easement to Forster Investments, Inc., its successors and assigns in title forever, it being agreed that the right and easement hereby granted is permanent, exclusive, except for the rights herein stated, perpetual and appurtenant to and runs with the property of Forster deeded to it in Deed Book 37747 at Page 760 of the Mecklenburg County Public Registry.

4. It is the intent of the parties that the easement granted herein is for the benefit of Forster and Dancy, and their heirs, successors, and assigns for the purposes of ingress, egress, and regress, installing and maintaining any and all utilities or stormwater requirements. Forster shall provide to Dancy a key for the metal gate placed upon the easement and shall further remove any debris, trash, or related objects impacting the easement. The parties intend that Forster shall be responsible for any maintenance and upkeep required upon the easements, excepting intentional damages or damages beyond normal wear and tear by Dancy, his heirs, successors, and assigns, including any successors in title from lots subdivided thereof.

5. Notwithstanding any provision or paragraph in this Grant of Easement, should Dancy close on the sale of Tax Parcel 017-072-38 to a third party, then Forster shall agree to relinquish or abandon the easement granted herein upon request of the third-party purchaser.

[Signatures on Following Page]

IN WITNESS WHEREOF, the parties have herunto set their hands and seals this the day and date first above written.

Don Dale Dancy (Seal)
Don Dale Dancy

Carol M. Dancy (Seal)
Carol M. Dancy

NORTH CAROLINA, Mecklenburg County.

I, the undersigned, a Notary Public of the County and state aforesaid, certify that Don Dale Dancy and Carol M. Dancy, Grantors, personally appeared before me this day and acknowledged the execution of the foregoing instrument. Witness my hand and official stamp or seal, this 19th day of August, 2022.

Deborah R. Hobart
Notary Public

My Commission Expires: 4-8-2026

Deborah R. Hobart
Notary's Printed or Typed Name

(Affix Seal)

[NOTARY BLOCKS]

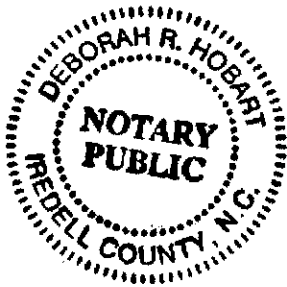


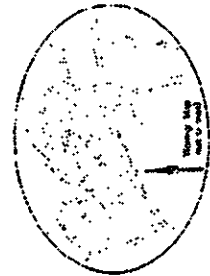
Exhibit A

BEGINNING at a point ("Beginning Point") located in the center of Old Statesville Road (also known as North Carolina Highway 115), said Beginning Point being located the following five (5) calls from a point ("Commencement Point") located at the southeasterly corner of Cynthia A. Kaufman as described in Deed Book 13106 Page 559 of the Mecklenburg County Registry, said Commencement Point being also located at the northwesterly corner of that certain 0.43 acre tract shown on that certain plat recorded in Map Book 40 Page 85 of the Mecklenburg County Registry, said Commencement Point being also located approximately 21.4 feet in a southerly direction from the intersection of the centerline of the said Old Statesville Road and the centerline of South Main Street, said South Main Street being shown on those certain plats recorded in Map Book 27 Page 153 and Map Book 40 Page 85 both of the Mecklenburg County Registry: (1) South 27-34-39 East 21.85 feet to a point in the center of the said Old Statesville Road, (2) South 28-27-10 East 49.27 feet to a point in the center of the said Old Statesville Road, (3) South 24-14-13 East 111.54 feet to a point in the center of the said Old Statesville Road, (4) South 17-26-32 East 38.81 feet to a point in the center of the said Old Statesville Road and (5) South 17-27-48 East 20.01 feet, and running thence from said POINT AND PLACE OF BEGINNING along the centerline of the said Old Statesville Road South 16-25-52 East 20.04 feet to a point; thence along the common boundary lines with Dearness Properties as described in Deed Book 19977 Page 589 of the Mecklenburg County Registry (Parcel #2 therein, 017-072-37) the following three (3) calls: (1) South 70-05-24 West 241.12 feet to an existing iron rebar found, (2) South 70-52-29 West 212.67 feet to an existing iron rebar found and (3) South 78-53-54 West 135.47 feet to an existing iron rebar found; thence along a new line forming the terminus of this easement North 00-07-13 West 20.28 feet to an existing iron rebar found; thence along the common boundary line with the Dancy Property, 017-072-39, now or formerly, North 78-49-16 East 75.82 feet to an existing iron rebar found; thence along the common boundary lines with the Dearness Properties, 017-072-40, now or formerly, the following three (3) calls: (1) North 78-44-35 East 54.24 feet to an existing iron rebar found, (2) North 70-54-45 East 211.19 feet to an existing iron rebar found and (2) North 70-05-54 East (passing an existing iron rebar found at 212.20 feet) a total distance of 242.26 feet to the point and place of BEGINNING, containing 11,757 square feet, more or less, as shown on a map of survey conducted by Andrew G. Zoutewelle, North Carolina Professional Land Surveyor No. L-3098, dated October 11, 2022.

Easement #1 as shown on a map of survey conducted by Andrew G. Zoutewelle, North Carolina Professional Land Surveyor No. L-3098, dated October 11, 2022

EXHIBIT A-1

EASEMENT #1

[illegible]

For Registration
 Fredrick Smith
 Register of Deeds
 Mecklenburg County, NC
 Electronically Recorded
 2022 Oct 31 04:05 PM RE Excise Tax: \$ 0.00
 Book: 37748 Page: 332 - 335 Fee: \$ 26.00
 Instrument Number: 2022149253

Fredrick Smith

Drawn By and Mail To: Prosser D. Carnegie, PO Box 363, Davidson, NC 28036

STATE OF NORTH CAROLINA

GRANT OF EASEMENT

COUNTY OF MECKLENBURG

THIS GRANT OF EASEMENT, entered into this 18th day of October, 2022, by and between Dearness Properties, LLC, (hereinafter "Dearness"), and Forster Investments, Inc., ("Forster"). Dearness and Forster sometimes referred to as "Party" or "Parties".

WITNESSETH

WHEREAS, Dearness is the owner of a tract of real property containing approximately 1.79 acres total on NC Hwy 115, (Old Statesville Road), Huntersville, N.C. and described as tax code parcel number 017-072-37 with a more particular description contained in Deed Book 19977, Page 589 as Tract I, Parcel 2, and such description of Parcel 2 is specifically incorporated herein by reference; and,

WHEREAS, Forster has purchased two parcels of real estate identified as tax code parcel number 017-072-07 and 017-072-40 in Deed Book 37747, Page 760, and tax code parcel number 017-072-39 in Deed Book 37747, Page 767, both recorded in the Mecklenburg County Public Registry, and Forster desires to establish a more formal and specific easement for use of a portion of tax code parcel number 017-072-37; and,

WHEREAS, Forster desires to be granted a temporary and non-exclusive easement for ingress, egress and regress, for all uses consistent with the business conducted on tax code parcel numbers 017-072-07, 017-072-40 and 017-072-39; and,

NOW, THEREFORE, in consideration of the sum of Ten (\$10.00) Dollars, the receipt and adequacy of which are hereby acknowledged, consented and agreed upon, and other good and valuable considerations, the Parties agree as follows:

1. That Dearness for themselves, their heirs, successors and assigns does hereby give, grant and convey to Forster Investments, Inc., its successors and assigns a temporary non-exclusive right and easement for the purposes of ingress, egress and regress and for all uses consistent with the business conducted on tax code parcel numbers 017-072-07, 017-072-40 and 017-072-39, on and over the easement land of Dearness for such purposes as Forster shall make use of said easement property. Said easement is described as follows:

See attached Exhibit A and Exhibit A-1

Submitted electronically by "Prosser D. Carnegie Attorney at Law"
 in compliance with North Carolina statutes governing recordable documents
 and the terms of the submitter agreement with the Mecklenburg County Register of Deeds.

It is the express intent of the Parties that the easement granted herein is temporary and non-exclusive to Forster and its heirs, successors and assigns.

To have and to hold said right and easement to Forster Investments, Inc., its successors and assigns in title forever, it being agreed that the right and easement hereby granted is temporary, non-exclusive and appurtenant to and runs with the property of Forster deeded to it in Deed Book 37747 at Page 760 and Deed Book 37747 at Page 767 of the Mecklenburg County Public Registry.

2. When Dearness closes on the sale of Tax Parcel 0017-072-37 to a third party, then Forster shall agree to relinquish or abandon the easement granted herein upon request by the third-party purchaser and which third-party purchaser has recorded title to Tax Parcel 017-072-37. Forster shall have Sixty (60) days, after notice from the purchasing 3rd party to relinquish or abandon this Grant of Easement.

IN WITNESS WHEREOF, the parties have hereunto set their hands and seals this the day and date first above written.

Dearness Properties, LLC

By: Suzanne J. Strickland (SEAL)
Suzanne J. Strickland-Member/Manager
Authorized Signatory

NORTH CAROLINA, Mecklenburg County.

I, the undersigned, a Notary Public of the County and state aforesaid, certify that Suzanne J. Strickland, Member/Manager and Authorized Signatory, for Dearness Properties, LLC, Grantor, personally appeared before me this day and acknowledged the execution of the foregoing instrument on behalf of Dearness Properties, LLC. Witness my hand and official stamp or seal, this 13TH day of OCTOBER, 2022 AND IN MY PRESENCE.

Tracey C. Higginbotham
Notary Public

My Commission Expires: 6/20/2023

TRACEY C. HIGGINBOTHAM
Notary's Printed or Typed Name

(Affix Seal)



Exhibit A

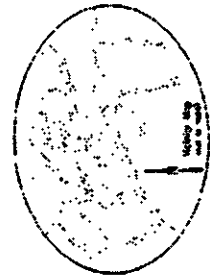
BEGINNING at a point ("Beginning Point") located in the center of Old Statesville Road (also known as North Carolina Highway 115), said Beginning Point being located the following six (6) calls from a point ("Commencement Point") located at the southeasterly corner of Cynthia A. Kaufman as described in Deed Book 13106 Page 559 of the Mecklenburg County Registry, said Commencement Point being also located at the northwesterly corner of that certain 0.43 acre tract shown on that certain plat recorded in Map Book 40 Page 85 of the Mecklenburg County Registry, said Commencement Point being also located approximately 21.4 feet in a southerly direction from the intersection of the centerline of the said Old Statesville Road and the centerline of South Main Street, said South Main Street being shown on those certain plats recorded in Map Book 27 Page 153 and Map Book 40 Page 85 both of the Mecklenburg County Registry: (1) South 27-34-39 East 21.85 feet to a point in the center of the said Old Statesville Road, (2) South 28-27-10 East 49.27 feet to a point in the center of the said Old Statesville Road, (3) South 24-14-13 East 111.54 feet to a point in the center of the said Old Statesville Road, (4) South 17-26-32 East 38.81 feet to a point in the center of the said Old Statesville Road, (5) South 17-27-48 East 20.01 feet to a point in the center of the said Old Statesville Road and (6) South 16-25-52 East 20.04 feet, and running thence from said POINT AND PLACE OF BEGINNING along the centerline of the said Old Statesville Road South 17-52-36 East 20.67 feet to a point; thence along the common boundary lines with Dearness Properties as described in Deed Book 19977 Page 589 of the Mecklenburg County Registry, 017-072-36, the following two (2) calls: (1) South 70-13-30 West 240.47 feet to an existing iron rebar found and (2) South 70-30-47 West 78.49 feet to a point; thence along the following three (3) new lines forming the margin and terminus of this easement (1) South 71-07-18 West 135.78 feet to a point, (2) South 78-53-54 West 140.80 feet to a point and (3) North 00-00-00 East 20.38 feet to an existing iron rebar found; thence along the common boundary line with Easement No. 1, described in Deed Book _____, Page _____ and also along the common boundary line with Don Dale Dancy and Carol M. Dancy as described in Deed Book 6017 Page 459 of the Mecklenburg County Registry, 017-072-38, the following three (3) calls: (1) North 78-53-54 East 135.47 feet to an existing iron rebar found, (2) North 70-52-29 East 212.67 feet to an existing iron rebar found and (2) North 70-05-24 East 241.12 feet to the point and place of BEGINNING, containing 12,004 square feet, more or less, as shown on a map of survey conducted by Andrew G. Zoutewelle, North Carolina Professional Land Surveyor No. L-3098, dated October 11, 2022.

Being shown as Easement #2 on a map of survey conducted by Andrew G. Zoutewelle, North Carolina Professional Land Surveyor No. L-3098, dated October 11, 2022.

EXHIBIT A-1

EASEMENT #2

EASEMENT #1

[illegible]