Total Project cost:

- Total Estimated Project Cost: $125,000

Timeline:

- May 4, 2022
    - Splash pad equipment ordered.
- August 8, 2022
    - Pre-Construction Conference.
- August 29, 2024
    - Splash Pad Contract sent & signed.
- January-February, 2023
    - Concrete pad installed & fixtures erected.
- April 27, 2023
    - Cracks beginning to form & bonded with Ardex by MWF.
- May 24, 2023
    - Street Bond applied to Splash Pad.
- June 10th, 2023
    - Splash pad Grand Opening.
- May 27, 2024
    - Pad showing issues.
- June 13, 2024
    - Some fixtures were removed & troubleshot.
        - Debris was unclogged but didn't fix the issue.
- August 8, 2024
    - Lines inspected & confirmed plugged with roots/dirt/debris.
- Summer 2025
    - Spoke & re-inspected lines with Scott & Advanced Aquatics. Was only able to leave half of the splash pad operational.
- July 31, 2025
    - Meeting with Advanced Aquatics, MWF, & City staff to figure out a repair plan.
    - MWF confirmed that the sub-soil & severe drought conditions played a major role in the excessive movement & cracking of the concrete leading to damaging the underground plumbing.

VORTEX

Lion's Park_TX
Version A - 37602

VORTEX

Water moves us

VORTEX

We understand how every drop, stream, and splash shapes the world around us. By harnessing the transformative power of water, Vortex creates play experiences for children to develop, communities to flourish, and businesses to thrive. We exist to leave an impact—one that lasts long after families are dried off.

VORTEX

8,000
Projects worldwide

50
Countries served

100+
Awards & honors

Why choose Vortex?

Our diverse expertise

To foster a rich understanding of your unique needs, our design team draws its talent from many disciplines. Engineers, creative designers, childhood development specialists, and water choreography experts tackle new projects from all exciting angles. Our multidisciplinary approach oversees countless variables including water management, accessibility, and (most importantly) play.

Our superior quality

Every Vortex project is engineered on-site to ensure the highest quality and safety standards. We use stainless and galvanized steel sourced from North America and are vertically integrated for maximum quality control. Manufactured and tested in our Montreal headquarters, products are designed to last and require little maintenance.

Our boots on the ground

We put a lot of stock into local representation. Every collaboration begins by getting to know the families you're servicing and thinking creatively about how we can help them grow. We ensure that no matter where you're situated, our customer service and expert guidance come equipped with an intuitive understanding of what sets your facility apart.

All 3D renders shown are for illustration purposes only. Actual colors, textures and finishes may differ from renders.

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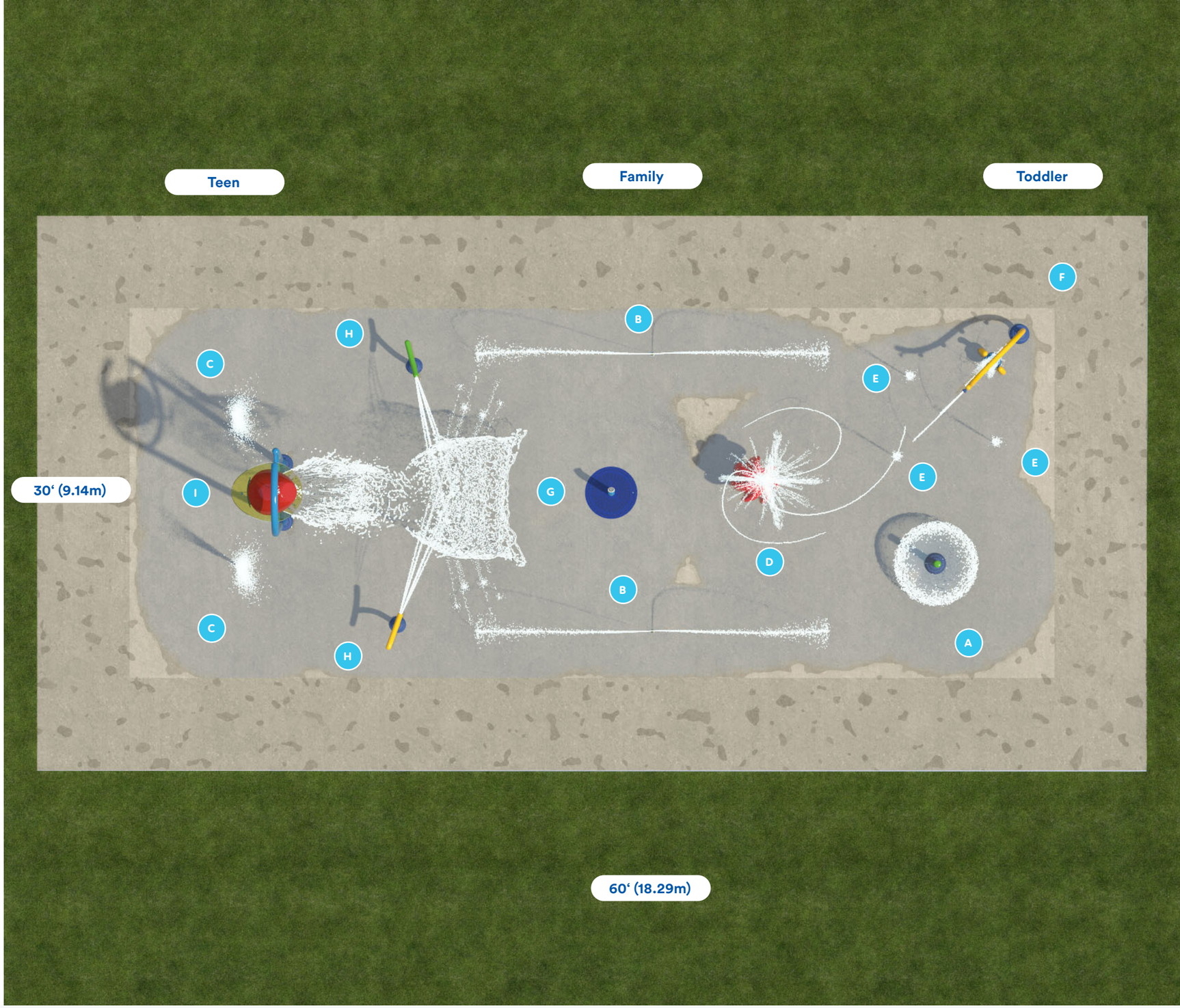
All 3D renders shown are for illustration purposes only. Actual colors, textures and finishes may differ from renders.

Total area:	1800 ft²	(167 m²)
Total sprayzone area:	1000 ft²	(93 m²)

REF	PRODUCT	QTY	GPM	LPM
A	Aqua Dome N°1 VOR 0555	1	14	53
B*	Directional Jet N°2 VOR 0321	2	3	11.4
C	Fountain Spray N°2 VOR 7676	2	6	22.7
D	Helio N°3 VOR 7238	1	3	11.4
E	Jet Stream N°1 VOR 7512	3	7.5	28.4
F	Luna N°3 VOR 7234	1	6.5	24.6
G	Smartpoint N°1 Post VOR-1910	1		
H*	Tube N°1 VOR 0220	2	8	30.3
I	Twinsplash VOR 7242	1	12	45.4
	TOTAL WATER FLOW	QTY	GPM	LPM
		14	60.0	227.2



All 3D renders shown are for illustration purposes only. Actual colors, textures and finishes may differ from renders.

Vortex Colors

Steel and Fiberglass

Beige RAL 1015 | Saffron RAL 1017 | Yellow** RAL 1023 | Orange** RAL 2011 | Red** RAL 3000 | Fuchsia RAL 4006 | Navy Blue RAL 5003 | Sky Blue RAL 5012 | Blue RAL 5017 | Pastel Blue RAL 5024 | Green RAL 6018 | Mint Green RAL 6019 | Pale Green RAL 6021 | Fern Green RAL 6025 | Coral Green RAL 6027 | Forest Green RAL 6029 | Grey RAL 7040 | Sparkle RAL 90080 | Brown RAL 8024 | White RAL 9003 | Black RAL 9017 | Polished*

* Polished stainless steel is only available on select products. An additional fee will apply.

** An additional fee may apply on fiberglass applications.

SeeFlow™

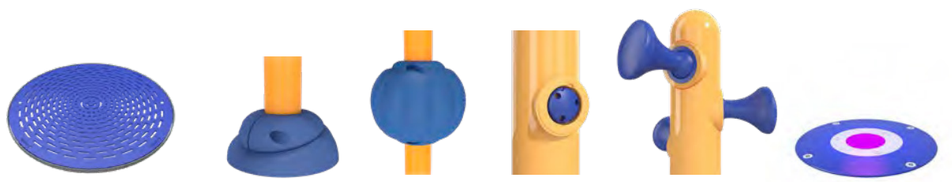
Yellow | Orange | Red | Blue | Green

Orbs

Mango | Red | Blue | Lime

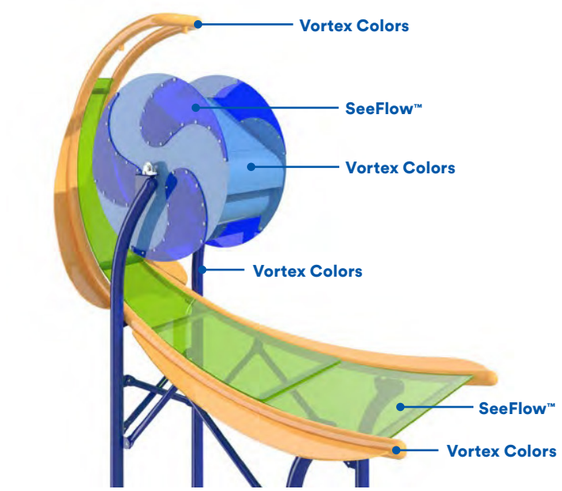
Accessories

Available in Vortex Blue (as shown)



PlaySafe™ Drain | ToeGuard™ | TwirlTec™ | PodSpray™ | TwistNozzle™ | LED

Superwave



Supersplash

Twinsplash

Urban | Marine | Nature | Vibrant

VORTEX

vortex-intl.com

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info@vortex-intl.com

1.877.586.7839 (USA & Canada)
+1.514.694.3868 (International)

1 PIPING

1.1 WDS CONFIGURATION ARE SCHEMATIC AND MAY BE MOVED OR ADJUSTED ON SITE BY VORTEX CERTIFIED INSTALLER TO ADJUST FOR SITE CONDITIONS

1.2 ANY REQUIRED BACKFLOW PREVENTER AND WATER METER ON THE CITY WATER MAIN SHALL BE PROVIDED BY INSTALLER. PRESSURE REGULATOR SHALL BE INSTALLED INSIDE THE SMARTPOINT

1.3 ALL PIPE LINES TO FEATURES TO HAVE A 1% MINIMUM RECOMMENDED SLOPE FOR PROPER WINTERIZATION.

1.4 ALL LINE SIZING (FEATURE CONNECTION TABLE) ASSUMES A MAXIMUM DISTANCE OF 30 FEET BETWEEN THE WATER DISTRIBUTION MANIFOLD AND THE FURTHEST PLAY PRODUCT. DISTANCES ABOVE 30 FEET MAY REQUIRE AN INCREASE IN LINE SIZING. PLEASE CONTACT VORTEX.

1.5 THE LINE DIAMETER FROM SMARTPOINT SHALL BE 6" BASED ON THE MAXIMUM FLOW AT 1% SLOPE. MODIFICATIONS MAY BE REQUIRED DUE TO SPECIFIC SITE CONDITIONS AND LOCAL CODE.

1.6 PRESSURE LINES ARE RECOMMENDED TO BE SCHEDULE 80 PVC OR PEX, AND NON-PRESSURE LINES TO BE SCHEDULE 40, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.

1.7 DRAINAGE LINES ARE RECOMMENDED TO BE SDR 35, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.

1.8 PIPING SHOULD BE INSPECTED AFTER TRANSPORTATION FOR CUTS, SCRATCHES, GOUGES OR SPLITS; DAMAGED SECTIONS MUST BE DISCARDED OR CUT OUT.

1.9 PIPE SHALL BE INSTALLED BELOW THE FROST LEVEL NOT LESS THAN 12" (ASTM F-645) UNLESS OTHERWISE REQUESTED BY LOCAL CODE.

1.10 PIPE INSTALLATION MINIMUM COVER SHOULD BE EVALUATED ACCORDING TO ASTM D-2774, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.

1.11 SPECIAL CONSIDERATIONS SHOULD BE TAKEN FOR THERMAL CONDITIONS, EXPANSION AND CONTRACTIONS DUE TO TEMPERATURE SHOULD BE EVALUATED BEFORE THE INSTALLATION BY THE CONTRACTOR.

1.12 MINIMUM 50 PSI REQUIRED AT THE INLET OF THE BACKFLOW PREVENTER AND PRESSURE REGULATING DEVICE.

1.13MAXIMUM FLOW CAPACITY OF SMARTPOINT IS 72 GPM.

1.14 TOTAL FLOW OF FEATURE IS 65 GPM.

1.15 FACTORY MAXIMUM SEQUENCING FLOW IS 45 GPM ACTUAL FLOW MAY VARY DUE TO SITE CONDITIONS.

2 ELECTRICAL

2.1 WIRING FROM THE TIMER POWER PACK TO SMARTPOINT SHALL BE #14 AWG. A TOTAL OF TWO (2) CONDUCTORS PER SMARTPOINT.

2.2 ALL CONNECTIONS TO THE TIMER POWER PACK AND OTHER VORTEX ELECTRICAL PANEL SHALL BE PERFORMED USING AN APPROVED NEMA 4X CONNECTOR.

2.3 WIRE FROM MAIN POWER TO VORTEX PANEL TO BE DETERMINED BY OTHERS RESPECTING THE LOCAL CODE.

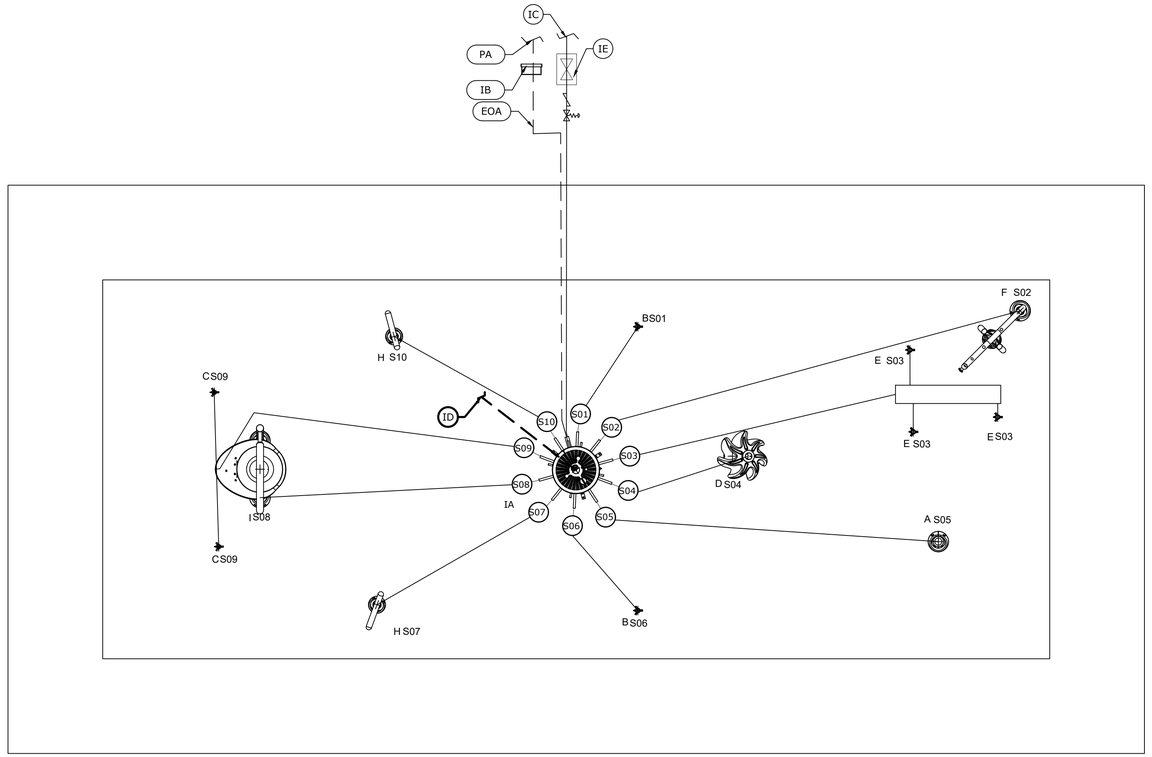
2.4 MAINTAIN A MINIMUM CLEARANCE ZONE OF 36" IN FRONT OF ELECTRICAL PANEL, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.

2.5 USE #8 BARE COPPER BONDING WIRE BETWEEN FEATURES TO A GROUNDING ROD IN THE SOIL, TIED INTO REBAR GRID, OR AS PER LOCAL CODE. SPRAY LINK FEATURES DO NOT REQUIRE BONDING.

2.6 AS PER ELECTRICAL CONSTRUCTION AND SAFETY CODES: CONTROLLER AND/OR ANY OTHER ELECTRICAL EQUIPMENT MUST BE HARD-WIRED TO A GROUND FAULT CIRCUIT INTERRUPTER (GFCI) FROM THE INPUT POWER SOURCE.

2.7 ALL ELECTRICAL WORK SHOULD BE PERFORMED BY A LICENCE ELECTRICIAN IN ACCORDANCE TO LOCAL ELECTRICAL CONSTRUCTION AND SAFETY CODES.

2.8 TIMER POWER PACK TO BE INSTALLED IN EXISTING ENCLOSURE OR WALL MOUNTED ON A VERTICAL STRUCTURE WITHIN 100' FROM THE SMARTPOINT.



1 PLUMBING & ELECTRICAL LAYOUT
PE-001

WATER LINE ——————————
DRAIN LINE — — — — — —
ELECTRICAL LINE – – – – – – – –

Feature Connection Table							
Manifold Output Ref.	Solenoid Valve	Feature Ref.	Feature	Qty	Line Size	Gpm	Output
S01	1" Std	B	Directional Jet N°2 VOR 0321	1	1"	3	IA-PCB-01
S02	1" Std	F	Luna N°3 VOR 7234	1	1"	6.5	IA-PCB-02
S03	1" Std	E	Jet Stream N°1 VOR 7512	3	1"	7.5	IA-PCB-03
S04	1" Std	D	Helio N°3 VOR 7238	1	1"	3	IA-PCB-04
S05	1" Std	A	Aqua Dome N°1 VOR 0555	1	1"	14	IA-PCB-05
S06	1" Std	B	Directional Jet N°2 VOR 0321	1	1"	3	IA-PCB-06
S07	1" Std	H	Tube N°1 VOR 0220	1	1"	5	IA-PCB-07
S08	1" Std	I	Twinsplash VOR 7242	1	1"	12	IA-PCB-08
S09	1" Std	C	Fountain Spray N°2 VOR 7676	2	1"	6	IA-PCB-09
S10	1" Std	H	Tube N°1 VOR 0220	1	1"	5	IA-PCB-10

Electrical Line Connections Power					
Product Code	From	To	# Conductors	Gauge/Type	Note
PA	Main Power Line (by Owner)	IB-120VAC	3	TBD (by Other)	120V, 1 Phase, 60Hz, 10 Amps Breaker Recommended ± 5% Voltage Drop is Acceptable

Electrical Line Connections Controller Outputs					
Product Code	From	To	# Conductors	Gauge/ Type	Note
EOA	IB	IA-PCB POWER	2	14	Signal from Timer Power Pack to Smartpoint No1, 24VAC (by Installer)

Product Legend		
Product Ref.	Product	Qty
IA	Smartpoint N°1 Post VOR 1910.0B01R02	1
IB	Timer Power Pack VOR 33903.1982	1
IC	2" City Water Line @ 50PSI (by Installer)	1
ID	6" Drain Line to Municipal Drain (by Installer)	1
IE	Self Draining Curb Box Valve (by Installer)	1
	2" Pressure Regulator, Located Inside Smartpoint (by Vortex)	1
	2" Backflow Preventer (by Installer)	1
	1" Solenoid Valve (by Vortex)	10

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United States 28031
Toll Free: +1 (877) 586-7839

Lion's Park

Project Location
City of Castroville, TX

Project Number
38245

Version
VB

Date	Revision Description	No.	By
07/July/2022	Issued for Bid	00	MS

Drawing Title
Plumbing & Electrical Layout

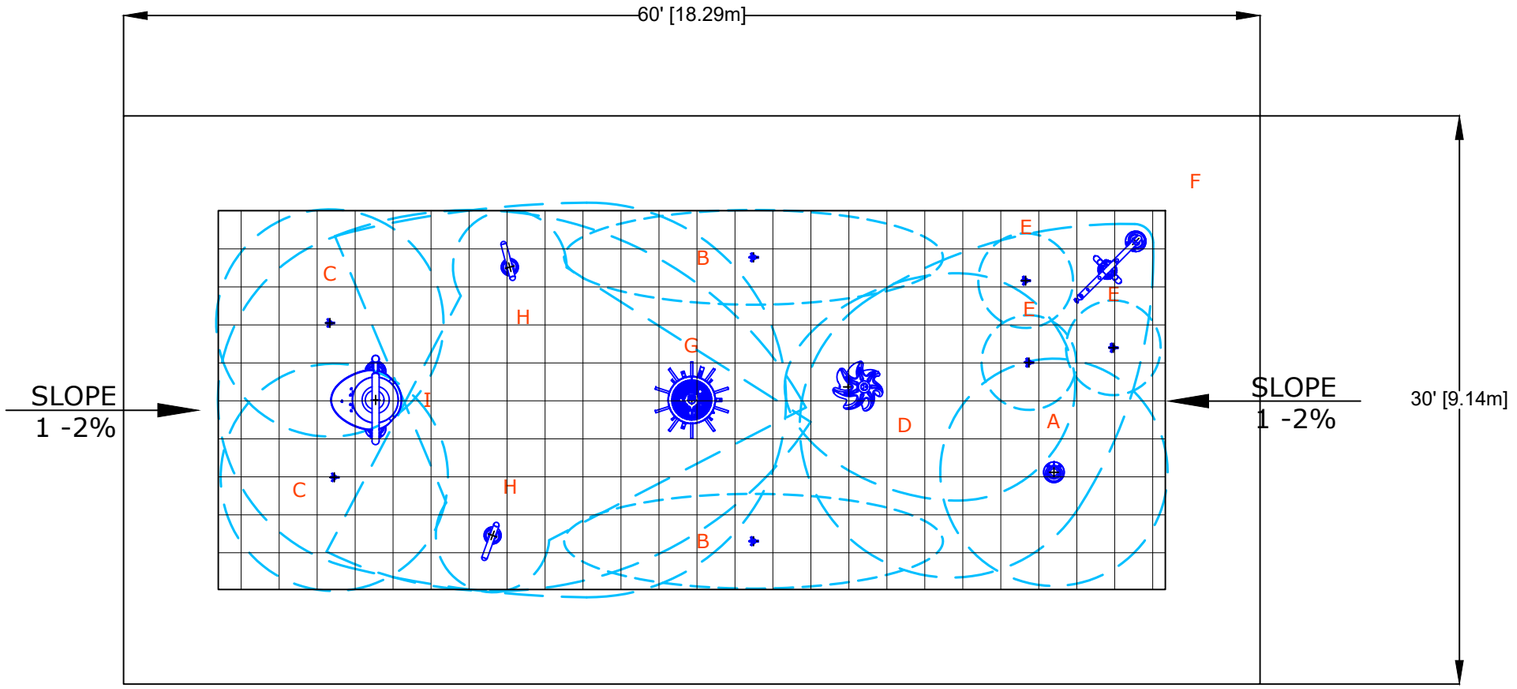
Drawn by: MS
Verified by: MAB
Scale: 1/4"=1'-0"
Date: 07/July/2022
Page #: PE-001

SPLASHPAD DIMENSION

TOTAL AREA :	1800 ft²	167 m²
SPRAY AREA :	1000 ft²	93 m²
GRID SIZE :	2 x 2 ft	0.6 x 0.6 m

PRODUCT LEGEND

REF	PRODUCT	QTY	GPM	LPM
A	Aqua Dome N°1 VOR 0555	1	14	53
B	Directional Jet N°2 VOR 0321	2	3	11.4
C	Fountain Spray N°2 VOR 7676	2	6	22.7
D	Helio N°3 VOR 7238	1	3	11.4
E	Jet Stream N°1 VOR 7512	3	7.5	28.4
F	Luna N°3 VOR 7234	1	6.5	24.6
G	Smartpoint N°1 Post VOR-1910	1		
H	Tube N°1 VOR 0220	2	8	30.3
I	Twinsplash VOR 7242	1	12	45.4
		QTY	GPM	LPM
	TOTAL	14	60	227.2



5'[1.5m] SPRAY FREE CONCRETE AREA ALL AROUND THE SPLASHPAD

Lion's Park, TX

37602 Version-A

December 15, 2021

SPLASHPAD LAYOUT DRAWING

SCALE :1/8":1'

11" X 17" sheet size

SPECIFICATIONS FOR CONSTRUCTION

1 GENERAL NOTES

1.1 THESE DESIGN DOCUMENTS WERE PREPARED BY 'VORTEX AQUATIC STRUCTURES INTERNATIONAL' FOR THE USE OF THEIR CLIENT ONLY. THE MATERIAL USED AND IDENTIFIED IN THEM REFLECTS VORTEX AQUATIC STRUCTURES INTERNATIONAL'S BEST JUDGMENT IN LIGHT OF THE INFORMATION AVAILABLE AT THE TIME OF PREPARATION. FOR THE PURPOSE OF THESE DESIGN DOCUMENTS, 'VORTEX AQUATIC STRUCTURES INTERNATIONAL' IS SYNONYMOUS WITH 'VORTEX'.

1.2 VORTEX ACCEPTS NO RESPONSIBILITY FOR DAMAGES, IF ANY, SUFFERED BY ANY THIRD PARTY AS A RESULT OF DECISIONS MADE OR ACTIONS BASED ON THESE DESIGN DOCUMENTS WITHOUT THE PREVIOUS CONSULTATION TO VORTEX.

1.3 ALL WORK, MATERIALS AND THEIR ASSEMBLIES SHALL CONFORM TO THE STANDARDS, REGULATIONS AND CODES CURRENTLY IN FORCE FOR ALL TRADES, AISC, ACNOR, EN, OR IBC.

1.4 THESE DESIGN DOCUMENTS DO NOT INDICATE THE METHOD OR MEANS OF CONSTRUCTION. WHEN APPLICABLE, THE CONTRACTORS SHALL SUPERVISE AND DIRECT ALL THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES AND SEQUENCES AS PER STANDARD BEST PRACTICES.

1.5 DO NOT SCALE DRAWINGS.

1.6 USE ONLY THOSE MARKED "ISSUED FOR CONSTRUCTION".

1.7 THE CONTRACTOR SHALL REVIEW THESE DESIGN DOCUMENTS AND REPORT ANY CONFLICTS OR OMISSIONS TO THE VORTEX IMMEDIATELY.

1.8 TEMPORARY SUPPORTS, WHICH WILL BE REQUIRED DURING CONSTRUCTION, SUCH AS FORMWORK, BRACING, SHORING, ETC. ARE NOT SHOWN ON THESE DRAWINGS AND ARE THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE TO ENSURE THAT ALL SAFE CONSTRUCTION PROCEDURES ARE FOLLOWED.

1.9 THE FOLLOWING SPECIFICATIONS ARE VORTEX'S MINIMUM RECOMMENDATIONS TO OBTAIN A QUALITY PRODUCT. THE CONTRACTOR SHALL FOLLOW THE LOCAL CODES IF MORE RESTRICTIVE.

1.10 ALL SEEFLOW COMPONENTS TO BE SNUG-TIGHT ONLY. USING POWER TOOLS OR TIGHTEN HARDWARE FULLY-TENSIONED CAN PRODUCE CRACKING ON THE PLASTIC.

2 EXCAVATION

2.1 ANY SHORING OR TEMPORARY SHORING NOT SHOWN ON DRAWINGS WILL BE EXECUTED, IN A SAFE MANNER, BY THE GENERAL CONTRACTOR.

2.2 IT IS THE RESPONSIBILITY OF OTHERS TO VERIFY THE EXISTENCE OF ANY UNDERGROUND SERVICES ETC.

2.3 IF AVAILABLE, REFER TO SOIL REPORT FOR BACKFILL REQUIREMENTS. ALL BACKFILL (FOR SLAB ON GRADE, ETC.) MUST BE DONE IN ACCORDANCE WITH THE RECOMMENDATIONS OF A QUALIFIED PROFESSIONAL. USE ONLY FREE DRAINING, GRANULAR, MINERAL, INERT AND NON- REACTIVE FILL.

3 FOUNDATIONS

3.1 REFER TO SOIL REPORT FOR RECOMMENDATIONS.

3.2 ALL FOOTINGS SHALL REST ON A HOMOGENEOUS LAYER OF UNDISTURBED SOIL OR ENGINEERED BACKFILL WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 100KPA

(2000 PSF) AND MAXIMUM DIFFERENTIAL SETTLEMENT OF 19 MM (0.75"). ALL ORGANIC MATERIAL SHALL BE REMOVED.
3.3 IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE SOIL AT ALL FOOTING LOCATIONS BE VERIFIED BY A QUALIFIED SOILS EXPERT BEFORE POURING FOOTINGS TO ENSURE FOOTINGS REST ON APPROPRIATE STRATA.
3.4 WHEN APPLICABLE, FOLLOW GEOTECHNICAL EXPERT RECOMMENDATIONS FOR ALL EXTERIOR FOOTINGS TO ENSURE FROST PROTECTION.
4 CONCRETE
4.1 ALL CONCRETE MATERIALS, PROCEDURES, TOLERANCES & WORKMANSHIP SHALL CONFORM TO THE LATEST ISSUES OF ACI-318 AND ACI 317 OR ACNOR CAN3-A23.1 & A23.2, DEPENDING ON PROJECT LOCATION.
4.2 CONCRETE THAT HAS BEEN IN THE TRUCKS LONGER THAN 2 HOURS SHALL BE REJECTED. DO NOT ADD WATER TO THE CONCRETE IN THE TRUCKS OR ON THE SITE UNDER ANY CIRCUMSTANCES.
4.3 USE MAXIMUM 76mm (3") SLUMP, 19mm (3/4") AGGREGATE, UNLESS OTHERWISE-NOTED. USE 5-7% AIR ENTRAINMENT FOR CONCRETE EXPOSED TO WEATHER ONLY.
4.4 ALL GROUT SHALL BE NON-SHRINK TYPE WITH A MINIMUM 28 DAYS STRENGTH OF 35.0 MPA (5000 PSI). USE 25 MM (1") GROUT UNDER ALL STEEL COLUMN BASE PLATES.
4.5 CONCRETE STRENGTH @ 28 DAYS TO BE:
4.5.1 FOUNDATIONS (FOOTINGS): 25.0 MPA (3500 PSI), UNLESS OTHERWISE NOTED.
4.5.2 INTERIOR SLAB ON GRADE: 25.0 MPa (3500 PSI), UNLESS OTHERWISE NOTED.
4.5.3 EXTERIOR SLAB ON GRADE: 32.0 MPa (4500 PSI), UNLESS OTHERWISE NOTED.
4.6 MINIMAL RE-BAR COVER:
4.6.1 CONCRETE POURED ON-GRADE = 76mm (3") COVER
4.6.2 CONCRETE POURED INTO FORMWORK BUT EXPOSED TO SOIL AND WEATHER FOR REBAR 15m (#4) AND UNDER = 50mm (2") COVER
5 REINFORCING STEEL
5.1 DEPENDING ON PROJECT LOCATION, ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615 (BARS 15m (#4) TO BE GRADE 60 WITH SUPPLEMENTARY REQUIREMENTS ON S1.
BARS SMALLER THAN 15m (#4), TO BE GRADE 40); OR TO ACNOR GRADE G30.12 [FY = 400MPA (60,000 PSI), UNLESS OTHERWISE NOTED].
5.2 USE CONCRETE, PLASTIC OR STEEL SUPPORT BARS, AS PER ACI (MANUAL OF STANDARD PRACTICE FOR DETAILING CONCRETE STRUCTURES). THE RE-BAR PLACER MUST REMAIN ON-SITE DURING POURS TO VERIFY CORRECT POSITIONING OF RE-BARS. SLANT UPPER REINFORCING STEEL IN LINE WITH THE SLOPE OF THE SLAB, IF APPLICABLE.
5.3 BARS SHALL BE SECURELY WIRED PER LATEST EDITION OF CRSI (RECOMMENDED PRACTICE FOR PLACING REINFORCING BARS).
5.4 ALL REINFORCING STEEL IS TO BE KEPT CLEAN AND FREE OF MUD, SNOW, ICE, AND ANY CONTAMINANTS.
5.5 VERTICAL AND CONTINUOUS REBAR SHALL BE LAPPED TO DEVELOP FULL TENSILE CAPACITY OF THE BAR. FOR 15M (#4) BARS MINIMUM LAP OF 610mm (24”).
6 EXTERIOR / INTERIOR SLAB ON GRADE
6.1 FOLLOW THE GEOTECHNICAL EXPERT RECOMMENDATIONS FOR PREPARATION OF SOIL BEFORE POURING THE CONCRETE. ALL GRANULAR MATERIAL SHALL BE MOISTENED

IMMEDIATELY BEFORE POURING THE CONCRETE. WATER AS NEEDED. DO NOT USE A VAPOR BARRIER.
6.2 NO TRUCKS ARE PERMITTED ON THE CONSTRUCTION SITE (OF THE SLAB) AFTER THE FINAL COMPACTION, EITHER BEFORE OR DURING, THE POUR.
6.3 SLAB TO BE MINIMUM 6" THICK, REINFORCED WITH 10m (#3) @ 300mm (12”) C/C REBAR PLACED IN BOTH DIRECTIONS AT MID-HEIGHT OF THE SLAB, UNLESS OTHERWISE NOTED ON PLANS. FOR ELEVATION/PLAYNUK REQUIREMENT OF THICKENED SLAB/MANIFOLD LOCATION, REFER TO ELEVATION INSTALLATION PACKAGE FOR DETAILS.
6.4 REFER TO CONCRETE SECTION FOR MINIMUM COMPRESSIVE STRENGTH AND AIR-ENTRAINMENT REQUIREMENTS.
6.5 FINISHING WILL BE MEDIUM BROOM.
6.6 CONTROL JOINTS (SAW-CUTS) TO BE LOCATED IN EACH DIRECTION, AT REGULAR INTERVALS, WITH A MAXIMUM DISTANCE OF 3 METERS (10 FEET). SHALL BE MINIMUM 3 MM (1/8") WIDE AND SHALL PENETRATE THE SLAB TO A MINIMUM DEPTH OF 1/3 OF THE THICKNESS OF THE SLAB. CONTROL JOINTS SHOULD BE DONE AS SOON AS POSSIBLE WITHOUT DAMAGING THE CONCRETE, BUT NO LATER THAN 18 HOURS AFTER POURING.
6.7 WHEN POSSIBLE AND TO AVOID SHRINKAGE CRACKING, HUMIDITY SHALL BE MAINTAINED FOR 7 DAYS DURING THE CURING PERIOD OF THE SLAB. WATER AND USE POLYETHYLENE CLOTH OR BAG. THE CONCRETE MUST DRY UNIFORMLY.
7 CONCRETE WORK IN COLD OR HOT WEATHER (MINIMUM REQUIREMENTS)
7.1 COLD WEATHER REQUIREMENTS APPLY WHEN THE MEAN AIR IS LESS THAN 5 DEGREES CELSIUS (40 DEGREES FAHRENHEIT).
7.2 GENERAL REQUIREMENTS FOR COLD WEATHER CONCRETE WORK SHALL BE AS PER ACI 306R-88; OR AS PER THE NBC'S LATEST REQUIREMENTS INCLUDING THE LATEST ISSUE OF CSA STANDARD CAN3-A23.1.
7.3 ALL SNOW AND ICE SHALL BE REMOVED FROM FORMS AND REBAR WITH STEAM AND COMPRESSED AIR BEFORE POURING. DO NOT USE DE-ICING SALT (CALCIUM CHLORIDE) OR ANY OTHER SALTS UNDER ANY CIRCUMSTANCES.
7.4 CONCRETE SHALL HAVE A MINIMUM TEMPERATURE OF 20 DEGREES CELSIUS AND A MAXIMUM TEMPERATURE OF 25 DEGREES CELSIUS WHILE POURING. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THESE REQUIREMENTS ARE SATISFIED. ANY CONCRETE THAT DOES NOT CONFORM MUST BE REJECTED.
7.5 THE SURFACE OF POURED CONCRETE SHALL BE PROTECTED BY MEANS OF SUITABLE COVERINGS AND INSULATION (TO BE DETERMINED BY TEMPERATURE) DURING THE CURING PROCESS.
7.6 GENERAL REQUIREMENTS FOR HOT WEATHER CONCRETE WORK SHALL BE AS PER ACI 305R-99; OR AS PER LOCAL CODE REQUIREMENTS.
8 PIPING
8.1 WDS CONFIGURATION ARE SCHEMATIC AND MAY BE MOVED OR ADJUSTED ON SITE BY VORTEX CERTIFIED INSTALLER TO ADJUST FOR SITE CONDITIONS
8.2 ANY REQUIRED BACKFLOW PREVENTER AND WATER METER ON THE CITY WATER MAIN SHALL BE PROVIDED BY OTHER.
8.3 ALL PIPE LINES TO FEATURES TO HAVE A 1% MINIMUM RECOMMENDED SLOPE FOR PROPER WINTERIZATION.
8.4 ALL LINE SIZING (FEATURE CONNECTION TABLE) ASSUMES A MAXIMUM DISTANCE OF 100 FEET BETWEEN THE WATER DISTRIBUTION MANIFOLD AND THE FURTHEST PLAY PRODUCT. DISTANCES ABOVE 100 FEET MAY REQUIRE AN INCREASE IN LINE SIZING. PLEASE CONTACT VORTEX.

8.5 QUANTITY AND LOCATION OF DRAINS BASED ON MAXIMUM FLOW FOR THE INDICATED PIPE DIAMETER AT 1% SLOPE. MODIFICATIONS MAY BE REQUIRED DUE TO SPECIFIC SITE CONDITIONS AND LOCAL CODE.
8.6 PRESSURE LINES ARE RECOMMENDED TO BE SCHEDULE 80 PVC OR PEX, AND NON-PRESSURE LINES TO BE SCHEDULE 40, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.
8.7 DRAINAGE LINES ARE RECOMMENDED TO BE SDR 35, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.
8.8 PIPING SHOULD BE INSPECTED AFTER TRANSPORTATION FOR CUTS, SCRATCHES, GOUGES OR SPLITS; DAMAGED SECTIONS MUST BE DISCARDED OR CUT OUT.
8.9 PIPE SHALL BE INSTALLED BELOW THE FROST LEVEL NOT LESS THAN 12" (ASTM F-645) UNLESS OTHERWISE REQUESTED BY LOCAL CODE.
8.10 PIPE INSTALLATION MINIMUM COVER SHOULD BE EVALUATED ACCORDING TO ASTM D-2774, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.
8.11 SPECIAL CONSIDERATIONS SHOULD BE TAKEN FOR THERMAL CONDITIONS, EXPANSION AND CONTRACTIONS DUE TO TEMPERATURE SHOULD BE EVALUATED BEFORE THE INSTALLATION BY THE CONTRACTOR.
8.12 VALVE NUMBER 1 IS LOCATED TO THE LEFT OF THE MANIFOLD FACING THE SOLENOID.
8.13 MINIMUM 50 PSI REQUIRED AT THE INLET OF THE BACKFLOW PREVENTER AND PRESSURE REGULATING DEVICE.
8.14 MAXIMUM FLOW CAPACITY OF MANIFOLD IS 159 GPM.
8.15 TOTAL FLOW OF FEATURE IS 113 GPM.
8.16 FACTORY MAXIMUM SEQUENCING FLOW IS 79 GPM ACTUAL FLOW MAY VARY DUE TO SITE CONDITIONS.
9 ELECTRICAL
9.1 EQUIPMENT BONDING; FEATURES SHALL BE CONNECTED TO AN EQUIPOTENTIAL BONDING GRID WITH A SOLID RIGID COPPER CONDUCTOR, THE MINIMUM SIZE OF BONDING CONDUCTORS NOT BE SMALLER THAN #6 AMERICAN WIRE GAUGE (AWG) (16mm2) COPPER. BOND TO ALL METALLIC PARTS LOCATED IN THE SPLASHPAD/POOL AND TO THE REBAR, TO RUN CONTINUOUS TO THE WATER PUMP AND ELECTRICAL SUPPLY PANELS. SEE ELEVATION INSTALLATION DRAWING FOR BONDING DETAILS (BY OTHERS).SPRAYLINKS FEATURE DO NOT REQUIRE BONDING.
9.2 GRID STRUCTURE; THE EQUIPOTENTIAL BONDING GRID SHALL COVER THE CONTOUR OF THE WATER BODY AREA AND ANY DECK EXTENDING 3FT (1m). HORIZONTALLY FROM THE INSIDE WALLS OF THE SPLASHPAD/WATER BODY. THE EQUIPOTENTIAL BONDING GRID SHALL BE ARRANGED IN A 12 IN (300mm). BY 12 IN (300mm). NETWORK OF CONDUCTORS IN A UNIFORMLY SPACED PERPENDICULAR GRID PATTERN WITH TOLERANCE OF 4 IN (100mm). A J-JUNCTION BOND CLAMP (DIRECT BURIAL CERTIFIED) CLAMPED TO A REBAR WITH WIRE LOOPED THROUGH CONNECTOR AND CLAMPED TO STEEL AND TO THE SPLASHPAD/POOL PUMP WATER
9.3 ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED; THE FOLLOWING EQUIPMENT SHALL BE GROUNDED. ALL ELECTRICAL EQUIPMENT LOCATED WITHIN 5FT (1.5 m) OF THE INSIDE WALL OF THE SPECIFIED BODY OF WATER." THIS EQUIPMENT ALSO INCLUDES (BUT NOT LIMITED TO): FEATURES, ELEVATIONS, DRAIN, REBAR, WATER INLET, SKIMMER, LADDER, SLIDES, DIVING STRUCTURE, UNDERWATER LIGHTING, JUNCTION BOXES, AND WATER CIRCULATING/HEATING EQUIPMENT.
ALL BONDING AND GROUNDING MUST COMPLY WITH NEC, CEC, AND LOCAL CODES.

9.4 ALTERNATE MEANS; WHERE STRUCTURAL REINFORCING STEEL IS NOT AVAILABLE OR IS ENCAPSULATED IN A NONCONDUCTIVE COMPOUND, A COPPER CONDUCTOR(S) SHALL BE UTILIZED WHERE THE FOLLOWING REQUIREMENTS ARE MET: (1) AT LEAST ONE MINIMUM 6 AWG BARE SOLID COPPER CONDUCTOR SHALL BE PROVIDED. (2) THE CONDUCTORS SHALL FOLLOW THE CONTOUR OF THE PERIMETER SURFACE. (3) ONLY LISTED SPLICES SHALL BE PERMITTED. (4) THE REQUIRED CONDUCTOR SHALL BE 450 TO 18 TO 24 IN (600mm) FROM THE INSIDE WALLS OF THE POOL. (5) THE REQUIRED CONDUCTOR SHALL BE SECURED WITHIN OR UNDER THE PERIMETER SURFACE (4 IN TO 6 IN (100mm TO 150mm). BELOW THE SUBGRADE.
9.5 SPLASHPAD/POOL WATER; WHERE NONE OF THE BONDED PARTS IS IN DIRECT CONNECTION WITH THE POOL WATER, THE POOL WATER SHALL BE IN DIRECT CONTACT WITH AN APPROVED CORROSION-RESISTANT CONDUCTIVE SURFACE THAT EXPOSED NOT LESS THAN 9 IN.2 (5800mm2) OF SURFACE AREA TO THE POOL WATER AT ALL TIMES. THE CONDUCTIVE SURFACE SHALL BE LOCATED WHERE IT IS NOT EXPOSED TO PHYSICAL DAMAGE OR DISLODGEMENT DURING USUAL POOL ACTIVITIES, AND IT SHALL BE BONDED IN ACCORDANCE WITH NEC, CEC, AND LOCAL CODES.
9.6 WIRING FROM THE CONTROLLER TO EACH ACTIVATOR SHALL BE #22 AWG. A TOTAL OF TWO (2) CONDUCTORS PER ACTIVATOR.CABLE LENGTH UP TO 300' (100m), PROVIDED BY OTHERS.
9.7 ALL CONNECTIONS TO THE CONTROLLER AND OTHER VORTEX ELECTRICAL PANEL SHALL BE PERFORMED USING AN APPROVED NEMA 4X CONNECTOR.
9.8 WIRE FROM MAIN POWER TO VORTEX PANEL TO BE DETERMINED BY OTHERS RESPECTING THE LOCAL CODE.
9.9 MAINTAIN A MINIMUM CLEARANCE ZONE OF 36" IN FRONT OF ELECTRICAL PANEL, UNLESS OTHERWISE REQUESTED BY LOCAL CODE.
9.10 AS PER ELECTRICAL CONSTRUCTION AND SAFETY CODES: CONTROLLER AND ANY OTHER ELECTRICAL ENCLOSURES MUST BE HARD-WIRED TO A GROUND FAULT CIRCUIT INTERRUPTER (GFCI) FROM THE INPUT POWER SOURCE.
9.11 ALL ELECTRICAL WORK SHOULD BE PERFORMED BY A LICENCE ELECTRICIAN IN ACCORDANCE TO LOCAL ELECTRICAL CONSTRUCTION AND SAFETY CODES.
9.12 THE MAESTROPRO CONTROL PANEL IS POWERED THROUGH A MAESTROPRO POWER BOX.
9.13 THE POWER CABLE TO MAESTROPRO POWER BOX IS SUPPLIED BY OTHERS.
9.14 THE MAESTROPRO CONTROL PANEL INTEGRATES 24 DIGITAL OUTPUTS WITH 24 VAC AND 12 DIGITAL INPUTS.
9.15 FOR REMOTE ACCESS ABILITY, A HARD CONNECTION TO AN EXISTING NETWORK IS REQUIRED USING A CAT 5 CABLE OR A CELLULAR NANO-SIM CARD WITH DATA-PLAN.

Advanced Aquatics of Texas LLC

City of Castroville/Vortex

Lions Park Splash Pad

Castroville, Texas

PROPOSAL

Bid Date: 11/11/2021
Revision Date:

Submitted By: Alan Walker
Phone: 281-229-3871

Email: alan@advancedaquaticstx.com

Proposal based on the following plans and specifications:
Vortex plan dated 5/31/21

SPLASHPAD PACKAGE TO INCLUDE

City Fees: Includes any permitting and inspection fees associated with the project.

Plumbing Work: Includes installing plumbing per engineer-specified plans including schedule 80 PVC above ground and schedule 40 below ground.

Utilities: Includes 10 LF of water line, 10 LF of sanitary sewer, and 10 LF of electrical service.

Electrical Work: Includes grounding and bonding of toys and wiring of bollard activator.

Equipment: Splashpad is a flow-through system so no mechanical equipment is required.

Splash Pad Toys: By Vortex – Includes all designated features in proposal.

City will be installing the concrete prep, forms and pad including texture and color

PRICING DETAILS

Splashpad Installation Price: **$50,000.00**

50% Deposit Due Prior to Project Start Date
50% Due at Completion

STANDARD EXCLUSIONS

Included?

Water Meter: No
Impact Fees: No
Mass Grading: No
Soil Mitigation (if required): No
911 Call Box and Knox Box: No
Deck Drainage: No
RPZ Valve: No
Equipment Housekeeping Pads: No
Landscape and Irrigation: No
Haul off Spoils from Site: Yes
Site Furnishings: No
Staking: No
Payment or Performance Bonds: No

Advanced Aquatics Commits to Providing the Following for Your Project:

Closeout Procedures- At the close of the project, all warranties will be submitted, and the workplace will be left clean and free of any debris.
Operation and Maintenance Manuals- Manuals will be provided at the close of the project for the complete operation and maintenance of all systems included in the project.
As-Built Plans- In the event that changes to the construction plans were made during the project, a set of red-lined as-bult drawings will be prepared and submitted.
Training- Training sessions will be provided to teach desired individuals the operation and maintenance of all applicable systems.

PROPOSAL ACCEPTANCE:

Approval and notice to proceed. Your Signature below will serve as our indication that you understand and agree to the proposal agreement as stated above. In addition, your signature will serve as our formal notice to proceed with engineering design. If you have any questions, please don't hesitate to call. We are ready to proceed with your authorization.

Alan Walker

_____ _____

President
Advanced Aquatics of Texas, LLC

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CONCRETE SERVICES

Jonah Chang
City of Castroville
1209 Fiorella St.
Castroville, Tx 78009

Good afternoon,

The following information is being provided my me regarding the excessive cracking and movement causing damage to the underground plumbing in the Concrete Water Splash Pad located at the Lions Club Park.

The concrete pad was installed with 6" 3,000 PSI concrete and a 12"X12" perimeter beam. The reinforcing used is 3/8" rebar at 16" on center both ways. Four, 5/8" rebar were placed in the perimeter beam.

A 4" cushion of sand was placed prior to rebar being placed.

All of the above-mentioned process is the industry standard for exterior concrete with little or no downward pressure such as a building with weight bearing interior walls.

In my opinion based on over 40 years of experience and working closely with multiple structural engineers is as follows:

Nothing could have prepared for the extensive drought that has continued to bear down on the project's location. These weather conditions have caused excessive drying of the sub soil downward over an excess of 12 feet. When this occurs, the different stratus of clay shrinks at different rates which can lead to uneven expanding and contracting of the subsoil.

When rain does fall on this area, it will soak down to varying depths. The before-mentioned strati of clay will expand at varying rates causing similar issues as when the conditions are dry.

A concrete slab of this size cannot be expected to survive through a shrink/swell pattern of this severity without significant damage.

In my opinion, the proper manner in which to correct these issues requires complete demolition of the existing damaged concrete structure, followed up with excavation and removal of 24" of the native soil and replacement with 24" of compacted crushed limestone fill.

A 6” concrete pad should be placed on this building pad and be reinforced with ½” rebar placed at 12” on center. A perimeter beam and crossed beams shall be placed in no more than 20’ intervals. All grade beams should be 12” wide and 24” deep reinforced with four 5/8” rebar.

The surface should be hard-troweled to insure a proper cap. This necessary process produces a slippery surface when it becomes wet. A cool-deck like product should be placed on the surface to provide a slip-resistance to circumvent this issue.

Thank you for taking the time to read and consider these opinions.

Mike Farris
MWF Concrete Services, LLC

ESTIMATE

MWF Concrete Services, LLC
PO Box 43
La Coste, TX 78039-0043

mwfservices@yahoo.com
+1 (830) 538-4814

Bill to
City of Castroville
1209 Fiorella Street
Castroville, TX 78009

Ship to
City of Castroville
Splash Pad
1101 Houston
Castroville, TX 78009

Estimate details
Estimate no.: 1003
Estimate date: 07/31/2025
Expiration date: 08/15/2025

#	Date	Product or service	Description	Qty	Rate	Amount
1.		**Services**	Demolish existing slab, excavate up to 24" of existing soil and remove from site to place supplied by city.	1	$14,235.00	$14,235.00

Total **$14,235.00**

Expiry date 08/15/2025

Note to customer

MWF will saw cut existing around plumbing features, but the features will be removed by others.
Concrete and up to 24" of existing soil will be excavated and removed to area supplied by city.,
Crushed limestone sub-base will be purchased and installed by Concrete Contractor.

Accepted date **Accepted by**

ESTIMATE

MWF Concrete Services, LLC
PO Box 43
La Coste, TX 78039-0043

mwfservices@yahoo.com
+1 (830) 538-4814

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1209 Fiorella Street
Castroville, TX 78009

Ship to
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1101 Houston
Castroville, TX 78009

Estimate details
Estimate no.: 1002
Estimate date: 07/31/2025
Expiration date: 08/15/2025

#	Date	Product or service	Description	Qty	Rate	Amount
1.		**Concrete Construction**	5"concrete Pad as per Plan.	1	$26,500.00	$26,500.00

Total **$26,500.00**

Expiry date 08/15/2025

Note to customer

Price includes all materials including Crushed Limestone sub-base up to 24" and compacted.

Accepted date

Accepted by