

WALNUT RIDGE PARK IMPROVEMENTS WESTERVILLE, OHIO

MEMBERS OF COUNCIL

MEGAN CZAKO - COUNCIL CHAIR
 AARON GLASGOW - VICE CHAIR
 DAVID GRIMES - MAYOR
 KELLY STOCKER - VICE MAYOR
 DANIELA BECKETT - MEMBER
 JEFF WASHBURN - MEMBER
 KENNETH L. WRIGHT - MEMBER

THE CITY OF WESTERVILLE STANDARD DRAWINGS LISTED ON THIS PLAN SHALL BE CONSIDERED A PART THEREOF.

RD-02
 RD-05
 RD-07
 TC-03

THE CITY OF COLUMBUS STANDARD DRAWINGS LISTED ON THIS PLAN SHALL BE CONSIDERED A PART THEREOF.

AA-S133A AA-S151
 AA-S139 AA-S169
 AA-S149 AA-S191
 AA-S150 AA-S192
 AA-S193

THE OHIO DEPARTMENT OF TRANSPORTATION STANDARD DRAWINGS LISTED ON THIS PLAN SHALL BE CONSIDERED A PART THEREOF.

DM-1.1

APPROVALS

SIGNATURES BELOW SIGNIFY ONLY CONCURRENCE WITH THE GENERAL PURPOSE AND LOCATION OF THE PROJECT. ALL TECHNICAL DETAILS REMAIN THE RESPONSIBILITY OF THE ENGINEER PREPARING THE PLANS.

	1/29/2026
_____ CITY ENGINEER, CITY OF WESTERVILLE, OHIO	DATE
	1/29/2026
_____ DIRECTOR OF PUBLIC SERVICE, CITY OF WESTERVILLE, OHIO	DATE
	1/29/2026
_____ CITY MANAGER, CITY OF WESTERVILLE, OHIO	DATE



LOCATION MAP
SCALE: 1" = 200'

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE RENOVATION OF WALNUT RIDGE PARK, INCLUDING NEW ASPHALT PARKING LOT AND TRAILS, CONCRETE WALKS, WETLAND DEVELOPMENT, BOARDWALKS, AND LANDSCAPING.

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 MICHAEL J. COUVREUR, PE



REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

 CIVIL ENGINEERING
 SURVEYING
 LANDSCAPE
 ARCHITECTURE
 www.kleingers.com
 330 Worthington Rd
 Suite 11
 Westerville, OH 43082
 614.882.4311

SCALE:
 N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

TITLE SHEET

APPROVED
 2024-004

GENERAL NOTES

THE CITY OF WESTERVILLE REQUIREMENTS, AS ADOPTED BY ORDINANCE 2023-05, THE 2018 EDITION OF THE CITY OF COLUMBUS CONSTRUCTION AND MATERIALS SPECIFICATIONS (COLS) AND THE 2023 EDITION OF THE STATE OF OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS (ODOT), WHERE REFERENCED, INCLUDING ALL SUPPLEMENTS, SHALL GOVERN ALL MATERIALS AND WORKMANSHIP INVOLVED IN THE IMPROVEMENTS SHOWN ON THIS PLAN.

ANY MODIFICATIONS TO THE WORK AS SHOWN ON THESE APPROVED PLANS SHALL HAVE PRIOR WRITTEN APPROVAL OF THE ENGINEER.

A PRECONSTRUCTION CONFERENCE SHALL BE SCHEDULED WITH THE ENGINEERING DIVISION PRIOR TO THE BEGINNING OF ANY WORK. INFORMATION PERTAINING TO THE PRECONSTRUCTION CONFERENCE CAN BE OBTAINED BY CALLING (614) 901-6650.

THE CONTRACTOR SHALL PROVIDE INFORMATION NECESSARY TO DEVELOP A COMPLETE AS-BUILT PLAN FOR THIS PROJECT. THE CONTRACTOR SHALL, AS WORK PROGRESSES, MAINTAIN AN ONGOING SET OF PLANS, MARKED IN RED, WITH A RECORD OF ACTUAL CONSTRUCTION INCLUDING FIELD CHANGES IN DIMENSION AND DETAIL, CHANGES MADE BY CHANGE ORDER, DETAILS NOT IN ORIGINAL CONTRACT DOCUMENTS, AND HORIZONTAL AND VERTICAL LOCATIONS OF UNDERGROUND UTILITIES AND APPURTENANCES REFERENCED TO PERMANENT SURFACE IMPROVEMENTS.

THESE AS-BUILT PLANS SHALL BE UPDATED WEEKLY AND SHALL BE AVAILABLE FOR REVIEW BY THE ENGINEER WHEN REQUESTED. AS A CONDITION OF FINAL ACCEPTANCE, THESE AS-BUILT PLANS SHALL BE TRANSMITTED TO AND BECOME THE PROPERTY OF THE CITY OF WESTERVILLE.

THE CONTRACTOR SHALL OBTAIN WRITTEN APPROVAL FROM THE ENGINEER FOR STAGING, STORAGE, AND FIELD OFFICE LOCATIONS.

THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR COMPLYING WITH ALL FEDERAL, STATE, AND LOCAL SAFETY REQUIREMENTS, THE CONTRACTOR SHALL ALSO EXERCISE PRECAUTIONS AT ALL TIMES FOR THE PROTECTION OF ALL PERSONS, INCLUDING EMPLOYEES, AS WELL AS PROPERTY. IT IS ALSO THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INITIATE, MAINTAIN, AND SUPERVISE ALL SAFETY REQUIREMENTS, PRECAUTIONS, AND PROGRAMS IN CONNECTION WITH THIS WORK.

ALL SIGNS, FENCES, DRAINAGE STRUCTURES, LAWNS, PAVEMENTS, SIDEWALKS, CURBS, ETC. DISTURBED DURING THE CONSTRUCTION OF THIS PROJECT SHALL BE RESTORED BY THE CONTRACTOR. UNLESS OTHERWISE PROVIDED IN THE CONTRACT, THE COST OF ALL SUCH WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS RELATED ITEMS.

THE CONTRACTOR SHALL MAINTAIN A NEAT, CLEAN, AND DUST FREE WORK SITE, INCLUDING ADJACENT PUBLIC ROADWAYS, AS DETERMINED BY THE ENGINEER. WHERE CONTRACTOR'S METHODS TO PROVIDE A CLEAN AND DUST FREE ENVIRONMENT ARE INADEQUATE, THE CONTRACTOR SHALL EMPLOY OTHER MEANS SUCH AS WASHING OR POWER VACUUMING TO ACHIEVE RESULTS SATISFACTORY TO THE ENGINEER.

TREES DENOTED AS "SAVE" ON THE PLANS SHALL BE PRESERVED. TREES LOCATED WITHIN THE CONSTRUCTION LIMITS IN GENERAL SHALL ALSO BE PRESERVED UNLESS THEY DIRECTLY INTERFERE WITH THE CONTRACTOR'S OPERATIONS. PROPER PROTECTION SHALL BE PROVIDED FOR TREES SUBJECT TO DAMAGE THROUGH THE CONTRACTOR'S OPERATIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY CLAIM FOR DAMAGE TO TREES BEYOND THE CONSTRUCTION LIMITS AND IN CASES WHERE TREES ARE REQUIRED OR DESIGNATED TO BE PRESERVED. ALL TREES, OTHER THAN THOSE SPECIFICALLY NOTED ON THE PLANS TO BE REMOVED, REQUIRE THE APPROVAL OF THE ENGINEER PRIOR TO REMOVAL.

DUE TO ENVIRONMENTAL CONSTRAINTS, TREES THAT ARE 3" OR LARGER IN DIAMETER SHALL NOT BE CUT DOWN BETWEEN THE DATES OF APRIL 1 AND SEPTEMBER 30. THE CONTRACTOR SHALL MAKE ALLOWANCED IN THE BID FOR COMPLYING WITH THIS REQUIREMENT AND SHALL RECEIVE NO ADDITIONAL COMPENSATION BECAUSE OF THE NEED TO COMPLY WITH THIS CONSTRAINT DURING CONSTRUCTION.

THE CONTRACTOR SHALL REFERENCE ALL IRON PINS AND MONUMENTS BEFORE EXCAVATION. THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY PINS OR MONUMENTS DETERMINED TO BE MISSING. ANY PINS OR MONUMENTS DISTURBED DURING THE COURSE OF THE WORK SHALL BE RESENT BY A SURVEYOR REGISTERED IN THE STATE OF OHIO AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL CONFINE ALL ACTIVITIES TO THE PROJECT WORK LIMITS AND SHALL NOT TRESPASS UPON PRIVATE PROPERTY WITHOUT WRITTEN PERMISSION OF THE OWNER.

THE WORK LIMITS SHOWN ON THESE PLANS ARE FOR PHYSICAL CONSTRUCTION ONLY. THE INSTALLATION AND OPERATION OF ALL TEMPORARY TRAFFIC CONTROL DEVICES REQUIRED BY THE CONTRACT DOCUMENTS SHALL BE PROVIDED BY THE CONTRACTOR WHETHER INSIDE OR OUTSIDE OF THESE WORK LIMITS.

ALL ROADWAY TRENCHES SHALL BE BACKFILLED OR SECURELY PLATED DURING NON-WORKING HOURS. ALL STREET PLATES SHALL BE SECURED WITH ASPHALT PLACED AROUND THE PERIMETER. THE CONTRACTOR SHALL MAINTAIN THE PLATES IN A SECURE, SAFE CONDITION. THE CITY MAY REQUIRE THE CONTRACTOR TO PROVIDE A MILLED RECESS AROUND THE PERIMETER OF THE EXCAVATION IN ORDER TO BETTER SECURE THE PLATE. THE MILLED RECESS SHALL BE THE SAME DEPTH AS THE PLATE THICKNESS AND PROVIDE A SMOOTH TRANSITION BETWEEN THE ASPHALT SURFACE AND STEEL PLATE.

DURING CONSTRUCTION, THE CONTRACTOR SHALL PROVIDE TEMPORARY AND PERMANENT SOIL EROSION AND SEDIMENTATION CONTROL PER THE STANDARDS AND SPECIFICATIONS OF THE "WATER MANAGEMENT AND SEDIMENT CONTROL FOR URBANIZING AREAS" MANUAL OF THE SOIL CONSERVATION SERVICE.

ONLY NEW MATERIAL SHALL BE FURNISHED. THE CONTRACTOR SHALL SUBMIT INVOICES TO THE CITY FOR ALL ITEMS DEMONSTRATING NEW MATERIALS HAVE BEEN FURNISHED. ITEMS SHALL BE DELIVERED IN ORIGINAL PACKAGING.

NO WELLS ARE PERMITTED WITHOUT WRITTEN APPROVAL OF THE CITY ENGINEER.

THE CONTRACTOR SHALL FURNISH AND MAINTAIN SANITARY CONVENIENCE FACILITIES FOR THE EMPLOYEES AND INSPECTORS FOR THE DURATION OF THE WORK.

GENERAL UTILITY NOTES

INVESTIGATION, SUPPORT, PROTECTION AND RESTORATION OF ALL EXISTING UTILITIES AND APPURTENANCES SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS UTILITY ITEMS.

THE FLOW OF ALL SEWERS, DRAINS, AND WATER COURSES DISTURBED DURING THE PROSECUTION OF THE WORK SHALL BE RESTORED BY THE CONTRACTOR TO A CONDITION EQUAL TO, OR BETTER THAN, ITS ORIGINAL CONDITION AND BE SATISFACTORY TO THE ENGINEER. THE CONTRACTOR SHALL DIGITAL VIDEO RECORD ALL REPAIRS AND SUBMIT THIS VIDEO TO THE ENGINEER FOR REVIEW AND APPROVAL. ALL VIDEO SHALL BE REVIEWED AND APPROVED BY THE ENGINEER PRIOR TO ANY PAVEMENT OPERATION COMMENCING. THE COST OF THIS WORK SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS RELATED ITEMS.

THE LOCATION OF THE UTILITIES SHOWN ON THE PLANS HAS BEEN OBTAINED THROUGH INFORMATION PROVIDED BY THE UTILITY COMPANIES AND BY FIELD SURVEY. THE FOLLOWING IS KNOWN UTILITY COMPANIES WITH FACILITIES WITHIN THE CONSTRUCTION AREA:

SANITARY, STORM WATER

CITY OF WESTERVILLE
370 PARK MEADOW RD
WESTERVILLE, OH 43081
(614) 901-6740

WATER

DELCO WATER
6658 OLENTANGY RIVER RD
DELAWARE, OH 43015
(740) 548-7746

COMMUNICATIONS

SPECTRUM
1015 OLENTANGY RIVER RD
COLUMBUS, OH 43212
(833) 224-6603

ELECTRIC

CITY OF WESTERVILLE
139 E BROADWAY AVE
WESTERVILLE, OH 43081
(614) 901-6700

ELECTRIC

AMERICAN ELECTRIC POWER
700 MORRISON RD
GAHANNA, OH 43230
(614) 883-6817

COMMUNICATIONS

BREEZELINE
3675 CORPORATE DR
COLUMBUS, OH 43231
(614) 948-4600

COMMUNICATIONS

CITY OF WESTERVILLE - WE CONNECT
35 COLLEGEVIEW RD
WESTERVILLE, OH 43081
(614) 349-8390

COMMUNICATIONS

AT&T
111 N 4TH ST
COLUMBUS, OH 43215
(614) 648-4495

COMMUNICATIONS

LEVEL 3 COMMUNICATIONS
250 W OLD WILSON BRIDGE RD
WORTHINGTON, OH 43085
(614) 347-3263

THE CONTRACTOR SHALL PROVIDE MINIMUM CLEARANCES OF 1.5 FEET VERTICALLY AND 3 FEET HORIZONTALLY BETWEEN ALL UNDERGROUND UTILITIES AND 5 FEET HORIZONTALLY FROM ALL UTILITY POLES, STREET LIGHTS AND TRAFFIC SIGNAL POLES. NO UTILITY FACILITY SHALL BE INSTALLED WITH LESS THAN THESE MINIMUM CLEARANCES WITHOUT THE WRITTEN APPROVAL OF THE OWNERS OF THE FACILITIES INVOLVED.

THE CONTRACTOR SHALL EXPOSE ALL UTILITIES OR STRUCTURES PRIOR TO CONSTRUCTION TO VERIFY THE VERTICAL AND HORIZONTAL CLEARANCES WITH PROPOSED CONSTRUCTION. NO SEPARATE PAYMENT SHALL BE MADE FOR THIS WORK AND ALL COSTS SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS RELATED ITEMS.

THE SEPARATION BETWEEN WATER LINES AND ALL SEWERS SHALL CONFORM TO THE REQUIREMENTS OF THE "RECOMMENDED STANDARDS FOR WASTEWATER FACILITIES & RECOMMENDED STANDARDS FOR WATER WORKS". THE BACKFILL BETWEEN ALL POINTS OF CROSSING SHALL FOLLOW CITY OF WESTERVILLE STANDARD CONSTRUCTION DRAWING "ANTI INFILTRATION & INFLOW BARRIER DETAIL".

THE BACKFILL UNDER ANY PUBLIC PAVEMENT OR WITHIN THE PAVEMENT INFLUENCE LINE (AS SHOWN IN CITY OF COLUMBUS STANDARD DRAWING 2179) SHALL BE COMPACTED THE FULL WIDTH OF THE TRENCH BY MEANS OF APPROVED MECHANICAL DEVICES TO MEET THE REQUIREMENTS OF COLS ITEM 912. ALL OTHER BACKFILL SHALL MEET THE REQUIREMENTS OF COLS ITEM 911. THE ITEM 912 BACKFILL SHALL EXTEND FROM THE BOTTOM OF THE TRENCH TO THE TOP OF THE PAVEMENT SUBGRADE FOR TRENCHES UNDER PAVEMENTS OR TO THE TOP OF THE PAVEMENT INFLUENCE LINE FOR TRENCHES NOT UNDER PAVEMENTS.

THE BACKFILL FOR ANY TRENCH WITHIN EXISTING OR PROPOSED PAVEMENT INFLUENCE LINE SHALL BE COMPACTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AT THE TIME THE BACKFILL IS PLACED. PLACING UNCOMPACTED BACKFILL TEMPORARILY WITH THE INTENTION OF EXCAVATING AND COMPACTING IT AT A SUBSEQUENT TIME IS NOT PERMITTED. REFERENCE COLS STANDARD DRAWING 2179 FOR DELINEATION OF PAVEMENT INFLUENCE. HOWEVER, THIS REQUIREMENT PERTAINS TO ANY PAVEMENT, WHETHER WITHIN THE PUBLIC RIGHT-OF-WAY OR OUTSIDE OF IT.

THE USE OF RECYCLED 304 IS NOT PERMITTED ON THIS PROJECT.

STORM SEWER NOTES

ALL DRAINAGE STRUCTURES SHALL BE PRECAST CONCRETE. POLYPROPYLENE OR PRECAST CONCRETE GRADE RINGS SHALL BE USED FOR ADJUSTMENT - BRICKS SHALL NOT BE PERMITTED.

MANHOLE LIDS SHALL BE LABELED "SEWER". CITY OF COLUMBUS LOGO SHALL NOT BE PERMITTED.

ALL PUBLIC STORM SEWERS SHALL BE REINFORCED CONCRETE PIPE CONFORMING TO ASTM DESIGNATION C76 CLASS II (AT A MINIMUM), WALL B, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

ALL ROADWAY UNDERDRAINS SHALL BE DISCHARGED INTO THE NEAREST STORM WATER MANAGEMENT FACILITY AVAILABLE ALONG THE LINE OF FLOW.

ALL CATCH BASIN AND CURB INLET CASTINGS SHALL BE LABELED/STAMPED WITH "NO DUMPING, DRAINS TO RIVERS".

PROVIDE 1" PERFORMED RUBBER EXPANSION JOINT FILLER (REFLEX OR EQUAL) IN CURB AND GUTTER 5' FROM EACH SIDE OF INLET.

CROSSINGS AND CONNECTIONS TO EXISTING PIPES

THE LOCATION OF EXISTING UTILITIES AND STRUCTURES SHOWN ON THE PLANS ARE BASED ON AVAILABLE RECORDS AT THE TIME OF SURVEY. THEY ARE SHOWN AS ACCURATELY AS POSSIBLE AND THE DESIGN ENGINEER AND THE OWNER ASSUME NO RESPONSIBILITY AS TO THE ACCURACY OF THE UNDERGROUND FACILITIES SHOWN ON THE PLANS.

THE CONTRACTOR IS RESPONSIBLE, PRIOR TO CONSTRUCTION, TO DETERMINE THE ACTUAL LOCATION AND ELEVATION OF ALL EXISTING UTILITIES WHETHER SHOWN ON THE PLANS OR NOT. THE CONTRACTOR SHALL CALL OUPS AT (800) 362-2764 TWO FULL WORKING DAYS PRIOR TO THE START OF CONSTRUCTION.

WHERE PLANS PROVIDE FOR A PROPOSED CONDUIT TO BE CONNECTED TO OR CROSS OVER OR UNDER AN EXISTING SEWER OR UNDERGROUND UTILITY, THE CONTRACTOR SHALL LOCATE THE EXISTING PIPES OR UTILITIES BOTH AS TO LINE AND GRADE BEFORE STARTING TO LAY THE PROPOSED CONDUIT.

IF IT IS DETERMINED THAT THE ELEVATION OF THE EXISTING CONDUIT OR EXISTING APPURTENANCE TO BE CONNECTED DIFFERS FROM THE PLAN ELEVATION OR RESULTS IN A CHANGE IN THE PLAN CONDUIT SLOPE, THE CITY ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WILL BE AFFECTED BY THE VARIANCE IN THE EXISTING ELEVATIONS.

IF IT IS DETERMINED THAT THE PROPOSED CONDUIT WILL INTERSECT AN EXISTING SEWER OR UNDERGROUND UTILITY IF CONSTRUCTED AS SHOWN ON THE PLAN, THE ENGINEER SHALL BE NOTIFIED BEFORE STARTING CONSTRUCTION OF ANY PORTION OF THE PROPOSED CONDUIT WHICH WOULD BE AFFECTED BY THE INTERFERENCE WITH AN EXISTING FACILITY.

NO SEPARATE PAYMENT SHALL BE MADE FOR THIS WORK AND ALL COSTS SHALL BE INCLUDED IN VARIOUS RELATED ITEMS.

RESIDENTIAL AND COMMERCIAL DRAINAGE CONNECTIONS

EXISTING ROOF DRAINS, FOOTING DRAINS, AND YARD DRAINS DISTURBED BY THE WORK SHALL BE PROVIDED WITH AN UNOBSTRUCTED OUTLET BY CONNECTING THEM TO A STORM WATER MANAGEMENT FACILITY.

REVIEW OF DRAINAGE FACILITIES

BEFORE ANY WORK IS STARTED ON THE PROJECT AND AGAIN BEFORE FINAL ACCEPTANCE BY THE CITY, REPRESENTATIVES OF THE CITY AND THE CONTRACTOR SHALL INSPECT ALL EXISTING SEWERS WHICH ARE TO REMAIN IN SERVICE AND MAY BE AFFECTED BY THE WORK. THE CONDITION OF THE EXISTING CONDUITS AND THEIR APPURTENANCES SHALL BE DETERMINED FROM FIELD OBSERVATIONS. RECORDS OF THE INSPECTION SHALL BE KEPT IN WRITING BY THE CITY.

ALL NEW CONDUITS, INLETS, CATCH BASINS, AND MANHOLES CONSTRUCTED AS A PART OF THE PROJECT SHALL BE FREE OF ALL FOREIGN MATTER AND IN A CLEAN CONDITION BEFORE THE PROJECT WILL BE ACCEPTED BY THE CITY.

ALL EXISTING SEWERS INSPECTED INITIALLY BY THE ABOVE MENTIONED PARTIES SHALL BE MAINTAINED AND LEFT IN A CONDITION REASONABLY COMPARABLE TO THAT DETERMINED BY THE ORIGINAL INSPECTION. ANY CHANGE IN THE CONDITION RESULTING FROM THE CONTRACTOR'S OPERATIONS SHALL BE CORRECTED BY THE CONTRACTOR TO THE SATISFACTION OF THE ENGINEER.

PAYMENT FOR ALL OPERATIONS DESCRIBED ABOVE SHALL BE INCLUDED IN THE CONTRACT PRICE FOR THE PERTINENT STORM SEWER ITEMS.

PIPE CLEANOUT

THIS WORK SHALL CONSIST OF REMOVING SEDIMENT AND DEBRIS FROM THE EXISTING DRAINAGE CONDUITS SPECIFIED IN THE PLANS. ALL MATERIAL REMOVED SHALL BE LEGALLY DISPOSED. ALL SEWERS SHALL BE CLEANED OUT TO THE SATISFACTION OF THE ENGINEER.

CLEANOUT OF THE PIPE SHALL BE PAID FOR AT THE UNIT PRICE BID FOR ITEM SPECIAL, PIPE CLEANOUT. THIS PRICE SHALL INCLUDE THE COST FOR MATERIAL, EQUIPMENT, LABOR, AND ALL INCIDENTALS REQUIRED TO COMPLETE THE CLEANOUT.

THE FOLLOWING ESTIMATED QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE ABOVE NOTED WORK:

SPECIAL, PIPE CLEANOUT 160 FT

FARM DRAINS

ALL FARM DRAINS ENCOUNTERED DURING CONSTRUCTION SHALL BE PROVIDED WITH UNOBSTRUCTED OUTLETS. EXISTING CONDUITS WHICH ARE LOCATED BELOW THE ROADWAY DITCH ELEVATIONS AND WHICH CROSS THE ROADWAY SHALL BE REPLACED WITHIN THE CONSTRUCTION LIMITS WITH TYPE B CONDUIT ONE COMMERCIAL SIZE LARGER THAN THE EXISTING CONDUIT.

EXISTING CONDUITS AND ISOLATED FARM DRAINS ENCOUNTERED ABOVE THE ELEVATION OF ROADWAY DITCHES SHALL BE DIRECTED INTO THE ROADWAY DITCH WITH TYPE F CONDUIT. THE OPTIMUM OUTLET ELEVATION SHALL BE ONE FOOT ABOVE THE FLOWLINE ELEVATION OF THE DITCH. LATERAL FIELD TILES, WHICH CROSS THE ROADWAY, SHALL BE INTERCEPTED BY TYPE E CONDUIT AND CARRIED IN A LONGITUDINAL DIRECTION TO AN APPROPRIATE OUTLET OR ROADWAY CROSSING.

THE LOCATION, TYPE, SIZE, AND GRADE OF REPLACEMENT SHALL BE DETERMINED BY THE ENGINEER AND PAYMENT SHALL BE MADE BASED ON FINAL MEASUREMENTS.

EROSION CONTROL PADS AND ANIMAL GUARDS SHALL BE PROVIDED AT THE OUTLET END OF ALL FARM DRAINS PER ODOT STANDARD DRAWINGS DM-1.1M EXCEPT WHEN THEY OUTLET INTO A DRAINAGE STRUCTURE. PAYMENT FOR THE EROSION CONTROL PADS, ANIMAL GUARDS, AND ANY NECESSARY BEND OR BRANCHES SHALL BE INCLUDED FOR PAYMENT IN THE PERTINENT CONDUIT ITEM.

THE FOLLOWING ESTIMATE OF QUANTITIES HAVE BEEN INCLUDED IN THE GENERAL SUMMARY FOR THE WORK NOTED ABOVE:

ITEM 601	ROCK CHANNEL PROTECTION, TYPE C WITH FILTER	5 CY
ITEM 603	6" CONDUIT, TYPE A	50 FT
ITEM 603	6" CONDUIT, TYPE E	50 FT
ITEM 603	6" CONDUIT, TYPE F	50 FT

SANITARY SEWER NOTES

ROOF DRAINS, FOUNDATION DRAINS AND OTHER CLEAN WATER CONNECTIONS TO THE SANITARY SEWER SYSTEM ARE PROHIBITED.

POLYPROPYLENE GRADE RINGS SHALL BE USED FOR ADJUSTMENTS. BRICKS SHALL NOT BE PERMITTED.

TRAFFIC NOTES

ALL TRAFFIC CONTROL DEVICES SHALL BE FURNISHED, ERECTED, MAINTAINED, AND REMOVED BY THE CONTRACTOR IN ACCORDANCE WITH THE CITY OF COLUMBUS STANDARDS AND OR OHIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS (OMUTCD), CURRENT EDITION.

THE CONTRACTOR SHALL SUBMIT DETAILED AND SCALABLE MAINTENANCE OF TRAFFIC (MOT) PLANS TO THE ENGINEER FOR REVIEW AND APPROVAL. THE MOT PLANS SHALL BE DIMENSIONED AND THE SPACING BETWEEN BARRELS, CONES, SIGNS, ETC. SHALL BE NOTED. INTERRUPTIONS TO NORMAL TRAFFIC SIGNAL OPERATIONS AND/OR BIKE PATH OR PEDESTRIAN ROUTES SHALL BE IDENTIFIED AND PROPOSED TEMPORARY MAINTENANCE OR RELOCATION OF THESE FACILITIES SHALL BE INCLUDED IN THE MOT PLANS. THE MOT PLANS SHALL BE PREPARED BY AN ENGINEER REGISTERED IN THE STATE OF OHIO AND SHALL BE SUBMITTED A MINIMUM OF 7 WORK DAYS PRIOR TO THE DATE NEEDED FOR THEIR APPROVAL.

IF EXISTING TRAFFIC CONTROL SIGNS CONFLICT WITH THE PROPOSED MAINTENANCE OF TRAFFIC SIGNS THEY CAN ONLY BE REMOVED WITH THE WRITTEN APPROVAL OF THE ENGINEER. THESE SIGNS SHALL BE REINSTALLED AT PROPER HEIGHT AND AT APPROXIMATELY THE SAME LOCATIONS OR AS DIRECTED BY THE ENGINEER. ANY EXISTING SIGNS OR POSTS THAT ARE DAMAGED, AS DETERMINED BY THE ENGINEER, AS A RESULT OF THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED AT THE CONTRACTOR'S EXPENSE.

ALL TRAFFIC SIGN MATERIAL, PERMANENT OR FOR MAINTENANCE OF TRAFFIC, SHALL BE TYPE G, HIGH INTENSITY, AS MADE BY THE 3M COMPANY.

SHOULD THE CITY ENGINEER DETERMINE ADDITIONAL SIGNS ARE NECESSARY FOR TRAFFIC MAINTENANCE, THEY SHALL BE INSTALLED BY THE CONTRACTOR WITHIN 24 HOURS.

PAYMENT FOR ALL LABOR, EQUIPMENT, AND MATERIALS SHALL BE INCLUDED IN THE LUMP SUM PRICE BID FOR ITEM 614, MAINTAINING TRAFFIC.

ALL TRAFFIC LANES ARE INTENDED TO BE FULLY OPEN TO TRAFFIC. ANY LANE CLOSURES DEEMED NECESSARY FOR THE CONSTRUCTION SHALL BE AUTHORIZED BY THE ENGINEER (614) 901-6650 AS PART OF AN APPROVED TRAFFIC MAINTENANCE PLAN PRIOR TO CLOSING AND OR APPROVED PLANS. LANE CLOSURES ON ARTERIAL STREETS SHALL ONLY OCCUR BETWEEN THE HOURS OF 9AM AND 3PM. OTHER RESTRICTIONS MAY APPLY.

CONSTRUCTION SIGNS SHALL NEITHER CONFLICT WITH NOR OBSTRUCT EXISTING TRAFFIC CONTROL SIGNS. SIGNAGE SHALL BE INSTALLED WITH PROPER SPACING BETWEEN SIGNS AND SHALL BE 100% VISIBLE FOR AN ADEQUATE DISTANCE, (150' FOR 25 MPH STREETS, 225' FOR 35 MPH STREETS AND 325' FOR 45 MPH STREETS). CONSTRUCTION SIGNS SHALL BE MOUNTED ON THEIR OWN POSTS. ALL CONSTRUCTION SIGNS SHALL BE INSTALLED, COVERED AND APPROVED BY THE ENGINEER PRIOR TO COMMENCING WORK ON THIS PROJECT.

CURB RAMP/ SIDEWALK / PATHWAY / CURB / APPROACH

CURB RAMPS, SIDEWALKS, AND PATHWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GUIDELINES PROPOSED BY THE UNITED STATES ACCESS BOARD (ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD) AS PUBLISHED IN THE "PROPOSED GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" AND THE "ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY; SHARED USE PATHS".

THE CONTRACTOR SHALL REFERENCE THE LATEST EDITION OF THE CITY OF COLUMBUS CURB RAMP STANDARD DRAWINGS FOR ADDITIONAL DETAILS AND MATERIAL REQUIREMENTS. FINAL ACCEPTANCE AND COMPLIANCE WITH THE ABOVE REFERENCED GUIDELINES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

ALL CURB RAMPS, SIDEWALKS, PATHWAYS, CURBS, APRONS AND/OR ASSOCIATED CONCRETE WORK FOUND TO BE NON-COMPLIANT WITH THESE GUIDELINES SHALL BE REMOVED AND RECONSTRUCTED BY THE CONTRACTOR TO MEET THE ABOVE GUIDELINES AT NO ADDITIONAL COST TO THE CITY.

ALL NEW CONCRETE AND ASPHALT SHALL HAVE POSITIVE DRAINAGE. ANY AREAS HOLDING WATER SHALL BE REMOVED AND RECONSTRUCTED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE CITY.

ANY WORK REMOVING SIDEWALK, THE SIDEWALK SHALL BE REMOVED TO THE NEAREST JOINT.

MISCELLANEOUS ITEMS

ALL ITEMS OF WORK SPECIFIED IN THE CONTRACT DOCUMENTS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS PROVIDED SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST SHALL BE INCLUDED IN THE PRICE BID FOR VARIOUS REPLACED ITEMS.

THE ROUNDING AT SLOPE BREAKPOINTS SHOWN ON THE TYPICAL SECTIONS APPLIES TO ALL CROSS SECTIONS EVEN IF SHOWN OTHERWISE.

THE PRICE QUOTED SHALL INCLUDE ALL ITEM OF LABOR, MATERIALS, TOOLS, EQUIPMENT, INSURANCE, AND OTHER COSTS NECESSARY TO FULLY COMPLETE THE WORK PURSUANT TO THE CONTRACT DOCUMENTS. IT IS THE INTENTION OF THE CONTRACT DOCUMENTS TO PROVIDE AND REQUIRE A COMPLETED PROJECT READY FOR OPERATION. ANY WORK ITEMS AND APPURTENANCES OMITTED FROM THE CONTRACT DOCUMENTS, WHICH ARE CLEARLY NECESSARY FOR THE COMPLETION OF SUCH WORK, SHALL BE CONSIDERED A PART OF SUCH WORK ALTHOUGH NOT DIRECTLY SPECIFIED OR CALLED FOR IN THE CONTRACT DOCUMENTS.

THE CONTRACTOR SHALL NOT ORDER MATERIALS OR PERFORM WORK FOR ITEMS DESIGNATED TO BE USED "AS DIRECTED BY THE ENGINEER" UNLESS AUTHORIZED BY THE ENGINEER.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



CIVIL ENGINEERING
SURVEYING
LANDSCAPE
ARCHITECTURE
www.kleingers.com
330 Worthington Rd
Suite 11
Westerville, OH 43082
614.882.4211

SCALE:
N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

GENERAL NOTES

APPROVED
2024-004

2
41

ESTIMATE OF QUANTITIES

ESTIMATED QUANTITIES ARE LISTED FOR INFORMATIONAL PURPOSES ONLY. CONTRACTOR(S) SHALL CONSTRUCT THE PROJECT IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. THE CONTRACTOR IS DIRECTED TO VERIFY ALL QUANTITIES PRIOR TO PREPARING AND SUBMITTING HIS OR HER BID. ANY ITEMS OF WORK CALLED FOR ON THE PLANS FOR WHICH NO SPECIFIC METHOD OF PAYMENT IS INDICATED SHALL BE PERFORMED BY THE CONTRACTOR AND THE COST OF SUCH WORK SHALL BE INCLUDED IN THE UNIT PRICE BID FOR THE VARIOUS ITEMS.

ESTIMATE OF QUANTITIES				
CMS	ITEM	QTY.	UNIT	DESCRIPTION
MISCELLANEOUS				
COLS	623	1	LS	CONSTRUCTION LAYOUT & SURVEYING
COLS	624	1	LS	MOBILIZATION
DEMOLITION				
COLS	201	1	LS	CLEARING & GRUBBING
COLS	201	19	EA	TREE REMOVED, 18-INCH SIZE
COLS	201	2	EA	TREE REMOVED, 30-INCH SIZE
COLS	201	2	EA	TREE REMOVED, 48-INCH SIZE
COLS	201	19	EA	STUMP REMOVED, 18-INCH SIZE
COLS	201	2	EA	STUMP REMOVED, 30-INCH SIZE
COLS	201	2	EA	STUMP REMOVED, 48-INCH SIZE
COLS	202	6059	SY	ASPHALT PAVEMENT REMOVED
COLS	202	8098	SF	CONCRETE PAVEMENT REMOVED
COLS	202	10	FT	CONCRETE BARRIER CURB REMOVED
COLS	202	13	FT	CONCRETE CURB AND GUTTER REMOVED
COLS	202	2	FT	CONCRETE FLUSH CURB REMOVED
COLS	202	1531	SF	WOODEN PEDESTRIAN BRIDGE REMOVED
COLS	202	7	EA	PARKING BLOCK REMOVED
COLS	202	910	FT	CHAIN LINK FENCE REMOVED
COLS	202	3	EA	BACKSTOP REMOVED
COLS	202	3	EA	BASKETBALL POLE / HOOP REMOVED
COLS	202	8	EA	BENCH REMOVED
COLS	202	2	EA	SIGN AND POST REMOVED
COLS	202	3	EA	BIKE RACK REMOVED
COLS	202	5	EA	BOLLARD REMOVED
COLS	202	1	EA	GRILL REMOVED
COLS	202	5	EA	CATCH BASIN REMOVED
COLS	202	188	FT	UTILITY PIPE REMOVED
COLS	202	2	EA	BENCH SALVAGED FOR RELOCATION
COLS	202	9	EA	BOULDER SALVAGED FOR RELOCATION
COLS	202	15	EA	LIMESTONE BLOCK SALVAGED FOR RELOCATION
COLS	202	3	EA	STORAGE BOX SALVAGED
COLS	202	5	EA	SIGN SALVAGED FOR RELOCATION
COLS	655	1	LS	TREE PROTECTION FENCE
EARTHWORK				
COLS	203	12090	CY	EXCAVATION
COLS	203	21400	CY	EMBANKMENT
COLS	203	9310	CY	BORROW
SPEC	SPEC	90	CY	ASSORTED RIVER STONE (2"-8" SIZE), AS PER PLAN
PAVEMENT				
COLS	204	3820	SY	SUBGRADE COMPACTION
COLS	204	634	SY	GEOTEXTILE FABRIC
COLS	206	2584	SY	CEMENT STABILIZED SUBGRADE, 12" DEEP
COLS	206	67	TON	CEMENT
COLS	206	2584	SY	CURING COAT
COLS	253	3	SY	PAVEMENT REPAIR
COLS	301	97	CY	ASPHALT CONCRETE BASE
COLS	304	568	CY	AGGREGATE BASE
COLS	407	409	GAL	NON-TRACKING TACK COAT
COLS	608	16271	SF	4" CONCRETE WALK (WESTERVILLE STD DWG RD-05)
COLS	609	13	FT	COMBINATION CURB AND GUTTER (WESTERVILLE STD DWG RD-02)
COLS	609	124	FT	FLUSH 6" CONCRETE CURB, AS PER PLAN
COLS	630	5	EA	SIGN SUPPORT ASSEMBLY, POLE MOUNTED, AS PER PLAN
COLS	630	33	FT	GROUND MOUNTED SUPPORT, NO. 3 POST, AS PER PLAN
COLS	630	8	SF	SIGN, FLAT SHEET, TYPE G, AS PER PLAN
COLS	642	1228	FT	PARKING LOT STALL MARKING, 4" WHITE, TYPE I
COLS	642	3	EA	HANDICAP SYMBOL MARKING, TYPE I
COLS	642	106	FT	CROSSWALK LINE, 24", TYPE I
COLS	1530	108	CY	ASPHALT CONCRETE, INTERMEDIATE COURSE, TYPE 1 (448), PG64-22
COLS	1530	156	CY	ASPHALT CONCRETE, SURFACE COURSE, TYPE 1 (448), PG64-22
SPEC	SPEC	36	CY	SPECIALTY ASPHALT PAVEMENT INTERMEDIATE COURSE, TYPE 2 (448), PG64-22
SPEC	SPEC	27	CY	SPECIALTY ASPHALT PAVEMENT SURFACE COURSE, TYPE 1 (448), PG64-22
SPEC	SPEC	1977	SF	PERVIOUS CONCRETE PAVEMENT
SPEC	SPEC	59	EA	CONCRETE PARKING BLOCK

STORM SEWER / DRAINAGE				
WEST	12832	1	LS	TEMPORARY SEDIMENT AND EROSION CONTROLS
COLS	601	11	CY	ROCK CHANNEL PROTECTION TYPE C WITH FILTER
COLS	601	45	CY	ROCK CHANNEL PROTECTION TYPE A WITH FILTER
COLS	601	1	SY	GROUTED RIPRAP TYPE A
COLS	603	50	FT	6" CONDUIT, TYPE A
COLS	603	50	FT	6" CONDUIT, TYPE E
COLS	603	50	FT	6" CONDUIT, TYPE F
COLS	604	8	EA	CATCH BASIN (AA-S133A)
COLS	604	5	EA	ENDWALL (AA-S169)
COLS	604	4	EA	PRECAST REINFORCED OUTLET (DM-1.1)
COLS	605	264	FT	4" UNDERDRAIN, 720.12 Type SP
COLS	605	3794	FT	4" UNDERDRAIN, AS PER PLAN
COLS	605	174	FT	6" UNDERDRAIN, 720.12 Type SP
COLS	605	1324	FT	6" UNDERDRAIN, AS PER PLAN
COLS	901	73	FT	12" STORM PIPE (706.02) WITH TYPE 1 BEDDING
COLS	901	259	FT	12" STORM PIPE (720.13) WITH TYPE 1 BEDDING
COLS	901	566	FT	15" STORM PIPE (720.13) WITH TYPE 1 BEDDING
COLS	1604	104	CY	BIORETENTION SOIL
SPEC	SPEC	21	CY	BIORETENTION FILTER LAYER
SPEC	SPEC	42	CY	BIORETENTION DRAINAGE LAYER
SPEC	SPEC	160	FT	PIPE CLEANOUT
SPEC	SPEC	5	EA	CONNECT TO EXISTING STORM SYSTEM
MISCELLANEOUS				
COLS	509	41	CY	CONCRETE ABUTMENT, AS PER PLAN
SPEC	SPEC	7638	SF	BOARDWALK DECK, AS PER PLAN
SPEC	SPEC	1654	FT	BOARDWALK KICK RAIL, AS PER PLAN
SPEC	SPEC	102	FT	BOARDWALK GUARD RAIL, AS PER PLAN
SPEC	SPEC	138	EA	HELICAL PIER, AS PER PLAN
SPEC	SPEC	1	EA	"NO SMOKING" SIGN, AS PER PLAN
SPEC	SPEC	3	EA	RELOCATED DONOR SIGN, AS PER PLAN
SPEC	SPEC	2	EA	RELOCATED BLEACHER, AS PER PLAN
SPEC	SPEC	9	EA	RELOCATED BOULDER, AS PER PLAN
SPEC	SPEC	13	EA	RELOCATED LIMESTONE BLOCK, AS PER PLAN
SPEC	SPEC	11	EA	STEPPING STONE, AS PER PLAN
SPEC	SPEC	25	EA	BOULDER, AS PER PLAN
ATHLETICS				
WEST	12119	634	SY	SPORT COURT ACRYLIC SURFACE TREATMENT
SPEC	SPEC	20532	SF	SKINNED INFIELD
SPEC	SPEC	2	EA	BASEBALL BACKSTOP
SPEC	SPEC	706	FT	4' HT. CHAIN LINK FENCE
SPEC	SPEC	414	FT	6' HT. CHAIN LINK FENCE
SPEC	SPEC	317	FT	8' HT. CHAIN LINK FENCE
SPEC	SPEC	4	EA	BASEBALL FOUL POLE (20' W/O WING)
SPEC	SPEC	4	EA	DUGOUT SYSTEM (10'X32')
SPEC	SPEC	4	EA	TEAM BENCH (21' LONG)
SPEC	SPEC	2	LS	BASEBALL BASES, HOME PLATE AND PITCHING RUBBER
SPEC	SPEC	2	EA	BASKETBALL SYSTEM
FURNISHINGS				
SPEC	SPEC	1	EA	GRILL, AS PER PLAN
SPEC	SPEC	4	EA	BENCH, AS PER PLAN
SPEC	SPEC	5	EA	TABLE, AS PER PLAN
SPEC	SPEC	3	EA	BIKE RACK, AS PER PLAN

LANDSCAPE				
COLS	659	13448	SY	SEEDING AND MULCHING, AS PER PLAN (TURFGRASS SEEDING)
COLS	659	15898	SY	SEEDING AND MULCHING, AS PER PLAN (MEADOW MIX, TYPE 1)
COLS	659	3864	SY	SEEDING AND MULCHING, AS PER PLAN (MEADOW MIX, TYPE 2)
COLS	661	5	EA	PLANTS, AS PER PLAN (ACER RUBRUM 'BRANDYWINE'; BRANDYWINE MAPLE; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (ACER RUBRUM 'RED SUNSET'; RED SUNSET MAPLE; 2" CAL.; B&B)
COLS	661	4	EA	PLANTS, AS PER PLAN (ACER SACCHARUM 'FALL FIESTA'; FALL FIESTA SUGA MAPLE; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (ACER SACCHARUM 'GREEN MOUNTAIN'; GREEN MOUNTAIN SUGAR MAPLE; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (AMELANCHIER x GRANDIFOLIA 'AUTUMN BRILLIANCE'; AUTUMN BRILLIANCE SERVICEBERRY; 7' HT.; B&B)
COLS	661	7	EA	PLANTS, AS PER PLAN (BETULA NIGRA 'HERITAGE'; HERITAGE RIVER BIRCH; 12' HT.; B&B)
COLS	661	3	EA	PLANTS, AS PER PLAN (CATALPA SPECIOSA; HEARTLAND CATALPA; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (CELTIS OCCIDENTALIS; AMERICAN HACKBERRY; 2" CAL.; B&B)
COLS	661	3	EA	PLANTS, AS PER PLAN (CERCIS CANADENSIS; REDUBUD; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (CLADRASTIS KENTUKEA; YELLOWWOOD; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (CRATAEGUS VIRIDIS 'WINTER KING'; WINTER KING HAWTHORNE; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (LIRIODENDRON TULIPIFERA; TULIP TREE; 2" CAL.; B&B)
COLS	661	5	EA	PLANTS, AS PER PLAN (NYSSA SYLVATICA; BLACK TUPELO; 2" CAL.; B&B)
COLS	661	7	EA	PLANTS, AS PER PLAN (PLATANUS x ACERIFOLIA; LONDON PLANETREE; 2" CAL.; B&B)
COLS	661	4	EA	PLANTS, AS PER PLAN (PRUNUS x YEDOESIS; YOSHINO CHERRY; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (QUERCUS ALBA; WHITE OAK; 2" CAL.; B&B)
COLS	661	3	EA	PLANTS, AS PER PLAN (QUERCUS BICOLOR; SWAMP WHITE OAK; 2" CAL.; B&B)
COLS	661	2	EA	PLANTS, AS PER PLAN (QUERCUS ELLIPSOIDALIS; NORTHERN PIN OAK; 2" CAL.; B&B)
COLS	661	8	EA	PLANTS, AS PER PLAN (TAXODIUM DISTICHUM; BALD CYPRESS; 2" CAL.; B&B)
COLS	661	10	EA	PLANTS, AS PER PLAN (ULMUS FRONTIER; FRONTIER ELM; 2" CAL.; B&B)
COLS	661	3	EA	PLANTS, AS PER PLAN (CLADRASTIS KENTUKEA; AMERICAN YELLOWWOOD; 2" CAL.; B&B)
COLS	661	6	EA	PLANTS, AS PER PLAN (JUNIPERUS VIRGINIANA 'BURKII'; BURK JUNIPER; 6' HT.; B&B)
COLS	661	19	EA	PLANTS, AS PER PLAN (ILEX VERTICILLATA 'RED SPRITE'; RED SPRITE WINTERBERRY; 18" HT.; CONT.)
COLS	661	3	EA	PLANTS, AS PER PLAN (VIBURNUM DENTATUM 'SYNNESTVEDT'; CHICAGO LUSTRE ARROWWOOD VIBURNUM; 24" HT.; B&B.)
COLS	661	27	EA	PLANTS, AS PER PLAN (PANICUM VIRGATUM; SWITCHGRASS; 18" HT.; CONT.)
COLS	661	17	EA	PLANTS, AS PER PLAN (ECHINACEA PURPUREA 'MAGNUS'; MAGNUS PURPLE CONEFLOWER; 24" HT.; CONT.)
COLS	661	11	EA	REINSTALLED DECIDUOUS TREE, AS PER PLAN
SPEC	SPEC	90	EA	SLOW-RELEASE TREE WATERING BAG, AS PER PLAN

BID ALTERNATE(S)				
COLS	653	3700	CY	PLANTING SOIL, AS PER PLAN
COLS	653	3700	CY	PLANTING SOIL, AS PER PLAN, MODIFIED (NO COMPOST ADDITIVE)
COLS	609	1275	FT	FLUSH 12" CONCRETE CURB, AS PER PLAN

SEE SUPPLEMENTAL SPECIFICATION 12000 FOR ADDITIONAL INFORMATION PERTAINING TO THE BID ALTERNATES

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



CIVIL ENGINEERING
SURVEYING
LANDSCAPE
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www.kleingers.com
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SCALE: **N.T.S.**

WALNUT RIDGE PARK IMPROVEMENTS

ESTIMATE OF QUANTITIES

APPROVED
2024-004

3
41

BID ALTERNATE: ITEM 653 - PLANTING SOIL, AS PER PLAN
BID ALTERNATE: ITEM 653 - PLANTING SOIL, AS PER PLAN, MODIFIED (NO COMPOST ADDITIVE)

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE PLANTING SOILS AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

1. MIXING, AMENDING AND MANUFACTURING PLANTING SOILS FROM BASE COMPONENTS.
2. SOIL TESTING.
3. PLACING, SPREADING AND GRADING OF PLANTING SOIL.

DEFINITIONS

PLANTING SOILS: THE LAWN AND PLANTING SOILS CONSIST OF A BLEND OF NATURAL TOPSOIL WITHOUT ADMXTURE OF SUBSOIL, STRIPPED FROM THE PROJECT SITE, AND ORGANIC MATERIAL. DO NOT MIX SUBSOIL WITH TOPSOIL. THE EXISTING TOPSOIL STRIPPED FROM THE SITE REQUIRES TESTING AFTER STOCKPILING TO DETERMINE THE PROPORTION OF SOIL AMENDMENTS REQUIRED TO MEET SPECIFICATION REQUIREMENTS.

1. BASE COMPONENTS:
 - a. BASE TOPSOIL IS A NATURAL GROWING MEDIUM, EITHER STRIPPED FROM THE SITE OR FROM OTHER OFF-SITE SOURCES.
 - b. ORGANIC MATERIAL IS FULLY DECOMPOSED ORGANIC MATERIAL.

SUBMITTALS

1. AT LEAST 30 DAYS PRIOR TO ORDERING MATERIALS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER REPRESENTATIVE SAMPLES, CERTIFICATIONS, MANUFACTURER'S PRODUCT DATA AND CERTIFIED TEST RESULTS FOR MATERIALS AS SPECIFIED BELOW FOR APPROVAL. NO MATERIALS SHALL BE ORDERED OR DELIVERED UNTIL THE REQUIRED SUBMITTALS HAVE BEEN REVIEWED AND APPROVED BY THE ENGINEER. DELIVERED MATERIALS SHALL CLOSELY MATCH THE APPROVED SAMPLES. APPROVAL SHALL NOT CONSTITUTE FINAL ACCEPTANCE, THE ENGINEER RESERVES THE RIGHT TO REJECT, ON OR AFTER DELIVERY, ANY MATERIAL THAT DOES NOT MEET THESE SPECIFICATIONS.

TOPSOIL:

- a. EXISTING ON-SITE TOPSOIL: SAMPLE AND TEST EXISTING ON-SITE TOPSOIL.
- b. THE CONTRACTOR SHALL PROVIDE A ONE CUBIC FOOT REPRESENTATIVE SAMPLE PER EACH 1,000 CUBIC YARD ON-SITE STOCKPILE OF EXISTING TOPSOIL FOR TESTING. ALL STOCKPILE SAMPLING SHALL BE PER ASTM D 75 AND APPENDIXES FOR SECURING SAMPLES FROM STOCKPILES.
- c. TESTING SHALL BE AT THE CONTRACTOR'S EXPENSE. CONTRACTOR SHALL DELIVER ALL SAMPLES TO TESTING LABORATORIES VIA OVERNIGHT COURIER AND SHALL HAVE THE TESTING REPORT SENT DIRECTLY TO THE ENGINEER. PERFORM ALL TESTS FOR GRADATION, ORGANIC CONTENT, SOIL CHEMISTRY AND PH BY SPECTRUM ANALYTIC, INC., 1087 JAMISON ROAD NW, WASHINGTON CH, OH 43160, (740) 335-1562.
- d. TESTING REPORTS SHALL BE DATED WITHIN 30 DAYS OF SUBMISSION TO THE ENGINEER. TESTING REPORTS BEYOND 30 DAYS OLD WILL BE REJECTED AND NEW TESTING REPORTS MANDATED.
- e. TESTING REPORTS SHALL INCLUDE THE FOLLOWING TESTS AND RECOMMENDATIONS. CONTRACTOR SHALL DELIVER SAMPLES TO TESTING LABORATORIES AND SHALL HAVE THE TESTING REPORT SENT DIRECTLY TO THE ENGINEER FROM THE TESTING AGENCY. TESTING REPORTS SHALL INCLUDE THE FOLLOWING TESTS AND RECOMMENDATIONS.
 - 1) MECHANICAL GRADATION (SIEVE ANALYSIS) SHALL BE PERFORMED AND COMPARED TO THE USDA SOIL CLASSIFICATION SYSTEM. SIEVE ANALYSIS SHALL BE BY COMBINED HYDROMETER AND WET SIEVING USING SODIUM HEXAMETAPHOSPHATE AS A DISPERSANT IN COMPLIANCE WITH ASTM D 422 AFTER DESTRUCTION OF ORGANIC MATTER BY H2O2. A COMPUTER-GENERATED GRADATION CURVE FROM TESTING AGENCY.
 - 2) PERCENT OF ORGANICS SHALL BE DETERMINED BY THE LOSS ON IGNITION OF OVEN-DRIED SAMPLES. TEST SAMPLES MINUS #10 MATERIAL SHALL BE OVEN-DRIED TO A CONSTANT WEIGHT AT A TEMPERATURE OF 450 DEGREES FAHRENHEIT (752 DEGREES CENTIGRADE).
 - 3) CHEMICAL ANALYSIS SHALL BE UNDERTAKEN FOR NITRATE NITROGEN, AMMONIUM NITROGEN, PHOSPHORUS, POTASSIUM, CALCIUM, MAGNESIUM, EXTRACTABLE ALUMINUM, LEAD, ZINC, CADMIUM, COPPER, SOLUBLE SALTS, AND PH AND BUFFER PH. A CONDUCTIVITY METER SHALL BE USED TO MEASURE SOLUBLE SALTS IN 1:2 SOIL/WATER (V/V), EXCEPT WHERE OTHERWISE NOTED, NUTRIENT TESTS SHALL BE FOR AVAILABLE NUTRIENTS.
- f. SOIL ANALYSIS TESTS SHALL SHOW RECOMMENDATIONS FOR SOIL ADDITIVES TO CORRECT SOILS DEFICIENCIES AS NECESSARY, AND FOR ADDITIVES NECESSARY TO ACCOMPLISH TURF AND PLANTING WORK AS SPECIFIED.

SOIL ADDITIVES:

- a. ACIDULANT: SUBMIT SUPPLIER'S CERTIFICATION THAT CONFIRMS THAT THE ACIDULANT BEING SUPPLIED CONFORMS TO THESE SPECIFICATIONS.
- b. FERTILIZER: SUBMIT PRODUCT DATA OF SEEDING AND PLANTING FERTILIZER AND CERTIFICATES SHOWING COMPOSITION AND ANALYSIS. SUBMIT FERTILIZATION RATES FOR FERTILIZER PRODUCT BASED UPON SOIL TESTING, ANALYSIS, AND RECOMMENDATIONS.
- c. TESTS SHALL BE BY COMBINED HYDROMETER AND WET SIEVING IN COMPLIANCE WITH ASTM D422 AFTER DESTRUCTION OF ORGANIC MATTER BY IGNITION.
- d. TEST FOR AGRICULTURAL SUITABILITY ANALYSIS INCLUDING: PARTICLE SIZE AND CHARACTERISTICS, AND PH.

EXAMINATION OF CONDITIONS

1. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JUDGING THE FULL EXTENT OF WORK REQUIREMENTS INVOLVED, INCLUDING BUT NOT LIMITED TO SAMPLING AND TESTING OF ON-SITE STOCKPILES OF DELIVERED OFF-SITE TOPSOIL PRIOR TO FINAL PLANTING INSTALLATION.

SITE CONDITIONS

SOIL MOISTURE CONTENT

1. CONTRACTOR SHALL NOT MOVE, BLEND OR GRADE SOIL WHEN MOISTURE CONTENT IS SO GREAT THAT ADEQUATE MIXING IS NOT POSSIBLE, NOR WHEN IT IS SO DRY THAT DUST WILL FORM IN THE AIR OR THAT CLOUDS WILL NOT BREAK READILY, NOR WHEN IT IS FROZEN. APPLY WATER, IF NECESSARY, OR ALLOW SOIL TO DRY TO BRING SOIL MOISTURE BETWEEN 60% OF OPTIMUM MOISTURE CONTENT AS DETERMINED BY ASTM D698 FOR COMPACTION, GRADING AND PLANTINGS.
2. SOIL MAY NOT BE MANIPULATED IN ANY WAY WHILE IN A WET CONDITION, INCLUDING MOVING OF STOCKPILES, GRADING, PLANTING OR ANY OTHER EXCAVATION. CONTRACTOR IS RESPONSIBLE FOR REMOVAL AND REPLACEMENT OF ANY AND ALL SOILS THAT WERE MANIPULATED WHEN WET.
3. FIELD SOIL MOISTURE TEST
 - a. FORM SOIL IN PALM OF HAND, IF SOIL RETAINS SHAPE AND CRUMBLES UPON TOUCHING, THE SOIL MAY BE WORKED.
 - b. IF THE SOIL WILL NOT RETAIN SHAPE IT IS TOO DRY AND SHOULD NOT BE WORKED.
 - c. IF THE SOIL RETAINS SHAPE AND WILL NOT CRUMBLE, IT IS TOO WET AND SHOULD NOT BE WORKED.
 - d. IF THE SOIL GLISTENS OR FREE WATER IS OBSERVED WHEN THE SAMPLE IS PATTED IN THE PALM OF HAND THE SOIL IS TOO WET AND SHOULD NOT BE WORKED.

TOPSOIL - GENERAL

1. THE CONTRACTOR IS RESPONSIBLE FOR BALANCING THE SITE EARTHWORK BY IMPORTING, EXPORTING, OR AMENDING ONSITE TOPSOIL AS NECESSARY TO ACHIEVE DESIGN GRADES AND SPECIFICATIONS.
2. ON-SITE SOILS:
 - a. TOPSOIL STOCKPILED FROM ON-SITE STRIPPING SHALL BE UTILIZED FOR REUSE.
 - b. AMEND ALL TOPSOIL ON SITE BY MIXING WITH SAND AND COMPOST TO MANUFACTURE SPECIFIED SOIL MIXES.
3. ADDITIONAL TOPSOIL:
 - a. IN THE EVENT THAT THERE IS AN INSUFFICIENT AMOUNT OF ON-SITE TOPSOIL TO COMPLETE THE PROJECT, ADDITIONAL TOPSOIL FROM OFF-SITE SOURCES SHALL BE PROVIDED FOR MIXING WITH SAND AND COMPOST TO MANUFACTURE THE SPECIFIED SOIL MIXES. ANY AMENDMENTS USED TO MANUFACTURE A SOIL TO BE IMPORTED SHALL MEET THE SPECIFICATIONS DEFINED IN THIS SECTION.

PLANTING SOIL FOR GENERAL USE

1. THE ON-SITE SOIL OR ANY IMPORTED TOPSOIL SHALL BE AMENDED WITH THE SPECIFIED COMPOST.
2. FOR BIDDING PURPOSES, TOPSOIL AND COMPOST, EACH AS SPECIFIED IN THIS SECTION, SHALL BE COMBINED IN AN APPROXIMATE MIX RATIO OF 3 PART BY VOLUME OF ON-SITE TOPSOIL TO ONE PART BY VOLUME OF COMPOST (3TS:1C). FINAL MIX RATIOS SHALL BE DETERMINED BY THE CONTRACTOR AND SHALL MEET THE REQUIREMENTS OF THIS SECTION.
3. THE FINAL PLANTING SOIL MIX SHALL BE SUBMITTED TO TESTING AGENCY TO DETERMINE THE FERTILITY STATUS OF THE SOIL.

SOIL ADDITIVES

1. GENERAL: SOIL ADDITIVES SHALL BE USED TO COUNTERACT SOIL DEFICIENCIES AS RECOMMENDED BY THE SOILS ANALYSIS AND AS SUPPLEMENTS FOR TURF CONSTRUCTION AS SPECIFIED HEREIN.
2. ACIDULANT FOR ADJUSTMENT OF TOPSOIL PH SHALL BE COMMERCIAL GRADE FLOURS OF SULFUR, FERROUS SULFATE, OR ALUMINUM SULFATE THAT ARE UNADULTERATED. ACIDULANTS SHALL BE DELIVERED IN UNOPENED CONTAINERS WITH THE NAME OF THE MANUFACTURER, MATERIAL, ANALYSIS AND NET WEIGHT APPEARING ON EACH CONTAINER.
3. GROUND LIMESTONE FOR ADJUSTMENT OF TOPSOIL PH SHALL CONTAIN NOT LESS THAN 85 PERCENT OF TOTAL CARBONATES AND SHALL BE GROUND TO SUCH FINENESS THAT 40 PERCENT WILL PASS THROUGH 100 MESH SIEVE AND 95 PERCENT WILL PASS THROUGH A 20 MESH SIEVE. CONTRACTOR SHALL BE AWARE OF TOPSOIL PH AND THE AMOUNT OF LIME NEEDED TO ADJUST PH TO MEET THE REQUIREMENTS OF THE TESTING LAB RECOMMENDATIONS.
4. THE COMPOST USED TO AMEND THE SOIL SHALL BE WELL DECOMPOSED, STABLE, MATURE, AEROBICALLY COMPOSTED PRODUCT UTILIZING FEEDSTOCK FROM YARD WASTES, FOOD WASTES, BIOSOLIDS, OR ANY COMBINATION OF THESE.
 - a. COM-TIL COMPOST, BY THE CITY OF COLUMBUS.
5. THE CONTRACTOR SHALL SUBMIT REPRESENTATIVE SAMPLES OF ORGANIC MATTER AMENDMENT THEY INTEND TO BRING ONTO THE SITE TO THE OWNERS TESTING AGENT. ALL REPORTS SHALL BE SENT TO THE ENGINEER FOR APPROVAL.
6. COMMERCIAL FERTILIZER SHALL BE A PRODUCT COMPLYING WITH THE STATE AND UNITED STATES FERTILIZER LAWS. DELIVER FERTILIZER TO THE SITE IN THE ORIGINAL UNOPENED CONTAINERS BEARING THE MANUFACTURER'S CERTIFICATE OF COMPLIANCE COVERING ANALYSIS AND WHICH SHALL BE FURNISHED TO THE ENGINEER. FERTILIZER SHALL CONTAIN NOT LESS THAN THE PERCENTAGES OF WEIGHT OF INGREDIENTS AS RECOMMENDED BY THE SOIL ANALYSIS.
7. FERTILIZER FOR PLANTING SHALL BE FORMULATED FOR TOP-DRESSING, SOIL SURFACE APPLICATION TO PLANTS. FERTILIZER SHALL BE DESIGNED AND CERTIFIED BY THE MANUFACTURER TO PROVIDE CONTROLLED RELEASE OF FERTILIZER CONTINUOUSLY FOR NOT LESS THAN 9 MONTHS. ONE HUNDRED PERCENT OF THE NITROGEN CONTENT SHALL BE DERIVED FROM ORGANIC MATERIALS. NITROGEN SOURCE SHALL BE COATED TO ENSURE SLOW RELEASE. FERTILIZER PERCENTAGES OF WEIGHT OF INGREDIENTS SHALL BE AS RECOMMENDED BY THE SOIL TESTING AND ANALYSIS SPECIFIED HEREIN.

EXAMINATION

1. VERIFICATION OF CONDITIONS: IN THE EVENT FIELD CONDITIONS ARE NOT AS SHOWN ON DRAWINGS AND OUTLINED IN THE SPECIFICATIONS, NOTIFY OWNER'S REPRESENTATIVE IN WRITING.
 - a. SPOT AND INVERT ELEVATIONS: VERIFY FIELD ELEVATIONS OF SITE IMPROVEMENTS SUCH AS DRAINAGE AND UTILITY FIXTURES, PAVEMENTS, EXISTING PLANTINGS, AND SUBSURFACE PIPING CONFORM TO DRAWINGS.
 - b. ROUGH GRADE: VERIFY SPECIFIED ELEVATIONS AND PRIOR EARTHWORK OPERATIONS HAVE SHAPED, TRIMMED, AND FINISHED ROUGH GRADE.

PREPARATION

1. PROTECTION: CONTRACTOR SHALL BE REQUIRED TO CLEAR WORKING AREAS WITH OHIO UTILITY PROTECTION SERVICE PRIOR TO DOING EXCAVATION ON SITE. IF WORK IS TO BE DONE AROUND UNDERGROUND UTILITIES, APPROPRIATE AUTHORITY OF UTILITY MUST BE NOTIFIED OF IMPENDING WORK. HAND EXCAVATE AREAS ADJACENT TO UTILITIES. CONTRACTOR SHALL BE RESPONSIBLE FOR DAMAGES DONE BY THEMSELVES OR THEIR PERSONNEL TO EXISTING UTILITIES, WHICH SHALL BE REPAIRED OR PAID FOR BY CONTRACTOR.

MIXING PLANTING SOIL

1. SOIL ADDITIVES SHALL BE THOROUGHLY INCORPORATED INTO PLANTING SOIL BY HARROWING OR OTHER METHODS STANDARD TO THE INDUSTRY.
2. CORRECT DEFICIENCIES IN SOIL AS DIRECTED BY HORTICULTURAL SOIL TEST RESULTS. THOROUGHLY INCORPORATE AMENDMENTS INTO PLANTING MIXTURE TO ENSURE EVEN DISTRIBUTION.

FILLING AND COMPACTION

1. DO NOT DAMAGE THE WORK PREVIOUSLY INSTALLED. MAINTAIN ALL REQUIRED ANGLES OF REPOSE OF MATERIALS ADJACENT TO THE PLANTING SOIL AS SHOWN ON THE DRAWINGS. DO NOT OVER EXCAVATE COMPACTED SUBGRADES OF ADJACENT PAVEMENT OR STRUCTURES DURING PLANTING SOIL INSTALLATION OPERATIONS.
2. CONFIRM THAT THE SUBGRADE IS AT THE PROPER ELEVATION AND THAT NO FURTHER EARTHWORK IS REQUIRED TO BRING THE SUBGRADE TO PROPER ELEVATIONS. SUBGRADE ELEVATIONS SHALL SLOPE PARALLEL TO THE FINISHED GRADE AND OR TOWARD THE SUBSURFACE DRAIN LINES AS SHOWN ON THE DRAWINGS.
3. CLEAR THE SUBGRADE OF ALL CONSTRUCTION DEBRIS, TRASH, RUBBLE AND ANY FOREIGN MATERIAL. IN THE EVENT THAT FUELS, OILS, CONCRETE WASHOUT OR OTHER MATERIAL HARMFUL TO PLANTS HAVE BEEN SPILLED INTO THE SUBGRADE MATERIAL, EXCAVATE THE SOIL SUFFICIENTLY TO REMOVE THE HARMFUL MATERIAL. SUCH CONSTRUCTION DEBRIS, TRASH, RUBBLE AND FOREIGN MATERIAL SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LEGAL MANNER. FILL ANY OVER EXCAVATION WITH APPROVED FILL AND COMPACT TO THE REQUIRED SUBGRADE COMPACTION LEVELS.
4. DO NOT PROCEED WITH THE INSTALLATION OF PLANTING SOIL UNTIL ALL UTILITY WORK IN THE AREA HAS BEEN INSTALLED.
5. PROTECT ADJACENT WALLS, WALKS AND UTILITIES FROM DAMAGE OR STAINING BY THE SOILS. USE 0.5-INCH PLYWOOD AND OR PLASTIC SHEETING AS DIRECTED TO COVER EXISTING CONCRETE, METAL AND MASONRY WORK AND OTHER ITEMS AS DIRECTED DURING THE PROGRESS OF THE WORK. CLEAN UP ALL TRASH AND ANY SOIL OR DIRT SPILLED ON ANY PAVED SURFACE AT THE END OF EACH WORKING DAY.

SOIL VOLUMES

1. PLANT SOIL VOLUMES REQUIRED AS FOLLOWS:

- a. PLANTING SOIL DEPTH FOR TREE PITS SHALL BE 30 INCHES BY THREE TIMES THE DIAMETER OF THE ROOT BALL.
- b. PLANTING SOIL DEPTH FOR PLANT BEDS CONTAINING SHRUBS, PERENNIALS, ORNAMENTAL GRASSES, AND GROUND COVER SHALL BE 12 INCHES.
- c. PLANTING SOIL DEPTH FOR TURF/MEADOW AREAS SHALL BE 4 INCHES MINIMUM AND 6 INCHES MAXIMUM.

FINE GRADING

1. IMMEDIATELY PRIOR TO DUMPING AND/OR SPREADING PLANTING SOIL, THE SUBGRADE SHALL BE CLEANED OF ALL STONES GREATER THAN 2 INCHES IN ANY DIMENSION AND ALL DEBRIS OR RUBBISH. SUCH MATERIAL SHALL BE REMOVED FROM THE SITE, NOT RAKED TO THE EDGES AND BURIED. NOTIFY THE ENGINEER THAT THE SUBSOIL HAS BEEN CLEANED AND REQUEST THEIR ATTENDANCE ON SITE TO REVIEW AND APPROVE SUBGRADE CONDITIONS PRIOR TO SPREADING PLANTING SOIL.
2. NOTIFY THE ENGINEER WHEN THE PLANTING SOIL IS SCHEDULED FOR PLACEMENT AND SCHEDULE HIS/HER ATTENDANCE ON SITE TO WITNESS DELIVERY AND STOCKPILING. ENGINEER WILL INSPECT THE PLANTING SOIL FOR CONFORMANCE TO THE REQUIREMENTS OF THIS SECTION.
3. PLANTING SOIL SHALL BE PROTECTED FROM EROSION AT ALL TIMES. MATERIALS SHALL BE SPREAD IMMEDIATELY UPON APPROVAL SOIL TEST REPORTS. OTHERWISE, MATERIALS THAT SET ON SITE FOR MORE THAN 24 HOURS SHALL BE COVERED WITH TARPULIN OR OTHER SOIL EROSION SYSTEM ACCEPTABLE TO THE ENGINEER AND SURROUNDED BY SILT FENCE.
4. PLACE PLANTING SOIL IN TWO LIFTS. PLACE THE FIRST LIFT TO A DEPTH OF 2 INCHES AND HARROW OR TILL THE PLANTING SOIL INTO THE UNDERLYING SUBSOIL TO A DEPTH OF 2 INCHES, CREATING A BLENDED INTERFACE OF PLANTING SOIL AND SUBSOIL APPROXIMATELY 4 INCHES DEEP. SPREAD THE SECOND LIFT OF PLANTING SOIL TO A MINIMUM DEPTH OF 4 INCHES OR GREATER AS SHOWN ON THE DRAWINGS.
5. NO PLANTING SOIL SHALL BE HANDLED, PLANTED, OR SEEDED IN ANY WAY IF IT IS IN A WET OR FROZEN CONDITION. A MOIST PLANTING SOIL IS DESIRABLE.
6. FERTILIZER SHALL BE SPREAD AND THOROUGHLY INCORPORATED INTO THE TOP LAYER OF THE PLANTING SOIL BY HARROWING OR OTHER METHOD REVIEWED BY THE ENGINEER. FERTILIZER SHALL BE APPLIED AT THE RATE RECOMMEND BY THE SOIL ANALYSIS.
7. REMOVE ALL LARGE STIFF CLOUDS, LUMPS, BRUSH, ROOTS, STUMPS, LITTER AND OTHER FOREIGN MATTER. REMOVE FROM UNSCREENED SOILS ALL STONES OVER 1 INCH IN AY DIMENSION FROM THE TOP 6 INCHES OF THE PLANTING SOIL BED. PLANTING SOIL SHALL ALSO BE FREE OF SMALLER STONES IN EXCESSIVE QUANTITIES AS DETERMINED BY THE ENGINEER.
8. THE CONTRACTOR SHALL INSTALL PLANTING SOIL IN SUCCESSIVE HORIZONTAL LIFTS NO THICKER THAN 6 INCHES IN TURF AREAS AND 12 INCHES IN PLANT BED AREAS TO THE DESIRED COMPACTION AS DESCRIBED HEREIN. THE CONTRACTOR SHALL INSTALL THE PLANTING SOIL AT A HIGHER LEVEL TO ANTICIPATE ANY REDUCTION OF PLANTING SOIL VOLUME DUE TO COMPACTION, SETTLING, EROSION, DECOMPOSITION, AND OTHER SIMILAR PROCESSES DURING THE WARRANTY PERIOD. THE ENGINEER WILL ENSURE THAT THE FULL DEPTHS OF PLANTING SOIL FOR TURF AND PLANT BEDS ARE OBTAINED BY DIGGING HOLES IN THE PLANTING SOIL AT THE SAME FREQUENCY AS FOR COMPACTION TESTING.
 - a. COMPACT PLANTING SOIL TO THE REQUIRED DENSITY AS SPECIFIED HEREIN.
 - b. MAXIMUM DRY DENSITY PLANTING SOIL SHALL BE DETERMINED IN ACCORDANCE WITH ASTM D698. THE FOLLOWING PERCENTAGES OF MINIMUM TO MAXIMUM DRY DENSITIES SHALL BE ACHIEVED FOR AMENDED TOPSOIL.

	MINIMUM	MAXIMUM
IN TURF, PLANT BEDS, AND TREE PITS:		
FILLS WITHIN TURF AND PLANTING AREAS IN TOP EIGHTEEN INCHES OF FINISHED GRADE	83%	86%

IN TURF, PLANT BEDS, AND TREE PITS:

	MINIMUM	MAXIMUM
IN TURF, PLANT BEDS, AND TREE PITS:		
FILLS WITHIN TURF AND PLANTING AREAS IN TOP EIGHTEEN INCHES OF FINISHED GRADE	83%	86%

- c. THE SURFACE AREA OF EACH LIFT SHALL BE SCARIFIED BY RAKING PRIOR TO PLACING THE NEXT LIFT.

COMPACTION

1. FOR PLANTING SOIL FOR GENERAL USE IN TURF AND PLANT BEDS, COMPACT EACH LIFT SUFFICIENTLY TO REDUCE SETTLING BUT NOT ENOUGH TO PREVENT THE MOVEMENT OF WATER AND FEEDER ROOTS THROUGH THE SOIL. THE PLANTING SOIL IN EACH LIFT SHOULD FEEL FIRM TO THE FOOT IN ALL AREAS AND MAKE ONLY SLIGHT HEEL PRINTS. AT COMPLETION OF THE PLANTING SOIL INSTALLATION, THE SOIL SHOULD OFFER A FIRM, EVEN RESISTANCE WHEN A SOIL SAMPLING TUBE IS INSERTED FROM LIFT TO LIFT.
2. SELECT EQUIPMENT AND OTHERWISE PHASE THE INSTALLATION OF THE PLANTING SOIL TO ENSURE THAT WHEELED EQUIPMENT DOES NOT TRAVEL OVER SUBSOIL. PLACED FILLS OR ALREADY INSTALLED SOIL. MOVEMENT OF TRACKED EQUIPMENT OVER SAID SOILS WILL BE REVIEWED AND CONSIDERED FOR APPROVAL BY THE ENGINEER. IF IT IS DETERMINED BY THE ENGINEER THAT WHEELED EQUIPMENT MUST TRAVEL OVER ALREADY INSTALLED SOIL, PROVIDE A WRITTEN DESCRIPTION OF SEQUENCING OF WORK THAT ENSURES THAT COMPACTED SOIL IS LOOSEND AND UN-COMPACTED AS THE WORK PROGRESSES OR PLACE ONE-INCH THICK STEEL PLATE BALLAST (OR EQUIVALENT BALLAST APPROVED BY THE ENGINEER) OVER THE LENGTH AND WIDTH OF ANY TRAVEL WAY TO COVER PLANTING SOIL TO PROTECT IT FROM COMPACTION.
3. DISTURBED AREAS OUTSIDE THE LIMIT OF TURF WORK SHALL BE GRADED SMOOTH AND SPREAD WITH A MINIMUM OF 6 INCHES OF PLANTING SOIL TO THE FINISHED GRADE.

CLEANING

1. CLEAN UP DEBRIS GENERATED UNDER WORK OF THIS SECTION.
2. SITE IMPROVEMENTS
 - a. WASH AND SWEEP CLEAN SITE IMPROVEMENTS SUCH AS DRAINAGE AND UTILITY FIXTURES, PAVEMENTS, EXISTING PLANTINGS, AND SITE FURNISHINGS.

PROTECTION

1. PROTECT WORK OF THIS SECTION UNTIL FINAL ACCEPTANCE.
2. PROTECT PREPARED SOILS FROM COMPACTION BY CONSTRUCTION TRAFFIC AND FROM CONTAMINATION BY CONSTRUCTION MATERIALS AND FROM SATURATION.

ACCEPTANCE

1. CONFIRM THAT THE FINAL GRADE OF THE PLANTING SOIL IS AT THE PROPER FINISH GRADE ELEVATIONS. ADJUST GRADE AS REQUIRED TO MEET THE CONTOURS AND SPOT ELEVATIONS NOTED ON THE DRAWINGS. REQUEST THE PRESENCE OF THE ENGINEER TO INSPECT FINAL GRADE. DO NOT PROCEED WITH THE REMAINING WORK OF THIS CONTRACT UNTIL THE ENGINEER HAS GIVEN WRITTEN APPROVAL OF THE FINAL GRADE.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



CIVIL ENGINEERING
SURVEYING
LANDSCAPE
ARCHITECTURE
www.kleingers.com
330 Worthington Rd
Suite 111
Westerville, OH 43082
614.882.4311

SCALE:
N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

APPROVED
2024-004

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN (TURFGRASS SEEDING)

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN (MEADOW MIX, TYPE 1)

ITEM 659 - SEEDING AND MULCHING, AS PER PLAN (MEADOW MIX, TYPE 1)

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE TURF AND MEADOW SEEDING AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THIS ITEM AND THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

1. TURFGRASS SEEDING.
2. HYDROMULCHING.
3. MEADOW GRASSES AND WILDFLOWERS.
4. TURF RENOVATION.
5. EROSION-CONTROL MATERIAL(S).

DEFINITIONS

1. FINISH GRADE: ELEVATION OF FINISHED SURFACE OF PLANTING SOIL.
2. 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.
3. 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.
4. PLANTING SOIL: SEE "ITEM 653 - PLANTING SOIL, AS PER PLAN".
5. 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.

PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

SUBMITTALS

1. QUALIFICATION DATA: FOR LANDSCAPE INSTALLER.
2. CERTIFICATION OF GRASS SEED: FROM SEED VENDOR FOR EACH GRASS-SEED MONOSTAND OR MIXTURE, STATING THE BOTANICAL AND COMMON NAME, PERCENTAGE BY WEIGHT OF EACH SPECIES AND VARIETY, AND PERCENTAGE OF PURITY, GERMINATION, AND WEED SEED, INCLUDE THE YEAR OF PRODUCTION AND DATE OF PACKAGING.
3. PRODUCT CERTIFICATES: FOR FERTILIZERS, FROM MANUFACTURER.
4. PESTICIDES AND HERBICIDES: PRODUCT LABEL AND MANUFACTURER'S APPLICATION INSTRUCTIONS SPECIFIC TO PROJECT.
5. MAINTENANCE DATA: RECOMMENDED PROCEDURES TO BE ESTABLISHED BY OWNER FOR MAINTENANCE OF TURF AND MEADOWS DURING A CALENDAR YEAR. SUBMIT BEFORE EXPIRATION OF REQUIRED MAINTENANCE PERIODS.

QUALITY ASSURANCE

INSTALLER QUALIFICATIONS: A QUALIFIED LANDSCAPE INSTALLER WHOSE WORK HAS RESULTED IN SUCCESSFUL TURF AND MEADOW ESTABLISHMENT.

1. PROFESSIONAL MEMBERSHIP: INSTALLER SHALL BE A MEMBER IN GOOD STANDING OF EITHER THE PROFESSIONAL LANDSCAPE NETWORK OR THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
2. EXPERIENCE: FIVE YEARS' EXPERIENCE IN TURF/MEADOW INSTALLATION.
3. INSTALLER'S FIELD SUPERVISION: INSTALLER SHALL 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 ALL OF THE FOLLOWING CATEGORIES FROM THE PROFESSIONAL LANDSCAPE NETWORK:
 - 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.

DELIVERY, STORAGE, AND HANDLING

1. SEED AND OTHER 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.
2. BULK MATERIALS:
 - a. DO NOT DUMP OR STORE BULK MATERIALS NEAR STRUCTURES, UTILITIES, WALKWAYS AND PAVEMENTS, OR ON EXISTING TURF AREAS OR PLANTS.
 - b. 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.
 - c. ACCOMPANY EACH DELIVERY OF BULK MATERIALS WITH APPROPRIATE CERTIFICATES.

FIELD CONDITIONS

1. 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.
 - a. SPRING PLANTING: MARCH 15 TO JUNE 1.
 - b. FALL PLANTING: AUGUST 15 TO OCTOBER 15.
2. WEATHER LIMITATIONS: PROCEED WITH PLANTING ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT PLANTING TO BE PERFORMED WHEN BENEFICIAL AND OPTIMUM RESULTS CAN BE OBTAINED. APPLY PRODUCTS DURING FAVORABLE WEATHER CONDITIONS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

TURFGRASS SEED

1. GRASS SEED: FRESH, CLEAN, DRY, NEW-CROP SEED COMPLYING WITH AOSA'S "RULES FOR TESTING SEEDS" FOR PURITY AND GERMINATION TOLERANCES.
2. SEED MIX: BASIS-OF-DESIGN: GREEN VELVET SPORTS MIX MANUFACTURED BY GREEN VELVET SOD FARMS, 6700 HUNTLEY ROAD, COLUMBUS, OHIO 43229. PHONE: 614-396-7247. FAX: 614-396-8544.
 - a. 80 PERCENT 3 ELITE TURF TYPE TALL FESCUE VARIETIES.
 - b. 10 PERCENT ELITE PERENNIAL RYEGRASS.
 - c. 10 PERCENT ELITE KENTUCKY BLUEGRASS.
 - d. GUARANTEED POA FREE.

MEADOW GRASSES AND WILDFLOWERS

1. WILDFLOWER SEED: FRESH, CLEAN, AND DRY NEW SEED, OF MIXED SPECIES MANUFACTURED BY OHIO PRAIRIE NURSERY, PO BOX 174 HIRAM, OHIO 44234. PHONE: 866-569-3380. EMAIL: INFO@OPNSEED.COM.
2. MEADOW MIX TYPE 1: NATIVE SHORT GRASS AND WILDFLOWER SEED MIX
 - a. GRASSES:
 - 1) SCHIZACHYRIUM SCOPARIUM - LITTLE BLUESTEM
 - 2) ELYMUS CANADENSIS - NODDING WILD RYE
 - 3) BOUTELOUA CURTIPENDULA - SIDE-OATS GRAMA
 - 4) ELYMUS VIRGINICUS - VIRGINIA WILD RYE

WILDFLOWERS:

- 1) CHAMAECRISTA FASCICULATA - PARTRIDGE PEA
- 2) DALEA PURPUREA - PURPLE PRAIRIE CLOVER
- 3) HELIOPSIS HELIANTHOIDES - OX EYE SUNFLOWER
- 4) COREOPSIS LANCEOLATA - LANCELEAF COREOPSIS
- 5) DESMANTHUS ILLINOENSIS - ILLINOIS BUNDLEFLOWER
- 6) GAILLARDIA PULCHELLA - INDIAN BLANKET
- 7) ECHINACEA PURPUREA - PURPLE CONEFLOWER
- 8) ERYNGIUM YUCCIFOLIUM - RATTLESNAKE MASTER
- 9) DALEA CANDIDA - WHITE PRAIRIE CLOVER
- 10) RUDBECKIA HIRTA - BLACK-EYED SUSAN
- 11) RATIBIDA PINNATA - YELLOW/GREY-HEADED CONEFLOWER
- 12) ASTRAGALUS CANADENSIS - CANADIAN MILK VETCH
- 13) ASCLEPIAS TUBEROSA - BUTTERFLY MILKWEEED
- 14) ASCLEPIAS SYRIACA - COMMON MILKWEEED
- 15) MONARDA FISTULOSA - WILD BERGAMOT
- 16) PENSTEMON DIGITALIS - FOXGLOVE BEARDTONGUE
- 17) LESPEDEZA CAPITATA - ROUNDHEADED BUSHCLOVER
- 18) COREOPSIS TINCTORIA - PLAINS COREOPSIS
- 19) SOLIDAGO RIGIDA - STIFF GOLDENROD
- 20) ASTER LAEVIS - SMOOTH ASTER

MEADOW MIX TYPE 2: OHIO FLOOD PLAIN NATIVE SEED MIX

- a. GRASS AND GRASSLIKE:
 - 1) ELYMUS VIRGINICUS - VIRGINIA WILD RYE
 - 2) ELYMUS CANADENSIS - NODDING WILD RYE
 - 3) ANDROPOGON GERARDII - BIG BLUESTEM
 - 4) ELYMUS MACGREGORII - EARLY WILD RYE
 - 5) PANICUM (DICHANTHELIUM) CLANDESTINUM - DEER-TONGUE GRASS
 - 6) CAREX VULPINOIDEA - BROWN FOX SEDGE
 - 7) SCIRPUS ATROVIRENS - DARK GREEN BULRUSH
 - 8) SPARTINA PECTINATA - PRAIRIE CORDGRASS
 - 9) GLYCERIA GRANDIS - REED MANNA / AMERICAN MANNA GRASS
 - 10) CAREX HIRSUTELLA - FUZZY WUZZY SEDGE
 - 11) SCIRPUS CYPERINUS - WOOLGRASS

WILDFLOWERS:

- 1) BIDENS ARISTOSA - TICKSEED SUNFLOWER
- 2) SENNA HEBECARPA - WILD SENNA
- 3) VERBENA HASTATA - BLUE VERVAIN
- 4) ASCLEPIAS INCARNATA - SWAMP MILKWEEED
- 5) RUDBECKIA LACINIATA - GREEN-HEADED CONEFLOWER
- 6) ASTER NOVAE-ANGLIAE - NEW ENGLAND ASTER
- 7) ACTINOMERIS ALTERNIFOLIA - WINGSTEM
- 8) EUPATORIUM FISTULOSUM - HOLLOW JOE PYE
- 9) MIMULUS RINGENS - MONKEY FLOWER
- 10) LOBELIA CARDINALIS - CARDINAL FLOWER
- 11) Pycnanthemum tenuifolium - NARROW LEAVED MOUNTAIN MINT
- 12) ONOCLEA SENSIBILIS - SENSITIVE FERN / MEADOW BRAKE

4. SEED CARRIER: INERT MATERIAL, RICE HULLS.
5. COVER CROP: REGREEN, MANUFACTURED BY OHIO PRAIRIE NURSERY.

FERTILIZERS

1. COMMERCIAL FERTILIZER: COMMERCIAL-GRADE COMPLETE FERTILIZER OF NEUTRAL CHARACTER, CONSISTING OF QUICK RELEASE NITROGEN SOURCE, PHOSPHATE, AND POTASH. APPLY NITROGEN, PHOSPHATE AND POTASH IN THE AMOUNTS RECOMMENDED IN THE SOIL REPORTS FROM A QUALIFIED TESTING AGENCY.
2. SLOW-RELEASE FERTILIZER: GRANULAR FERTILIZER CONSISTING OF A MINIMUM OF 50 PERCENT WATER-INSOLUBLE NITROGEN OR COATED NITROGEN SOURCE, PHOSPHATE, AND POTASH. APPLY NITROGEN, PHOSPHATE AND POTASH IN THE AMOUNTS RECOMMENDED IN THE SOIL REPORTS FROM A QUALIFIED TESTING AGENCY.

MULCHES

1. FIBER MULCH: BIODEGRADABLE, DYED-WOOD, CELLULOSE-FIBER MULCH; NONTOXIC AND FREE OF PLANT-GROWTH OR GERMINATION INHIBITORS; WITH A MAXIMUM MOISTURE CONTENT OF 15 PERCENT AND A PH RANGE OF 4.5 TO 6.5.
2. NONASPHALTIC TACKIFIER: COLLOIDAL TACKIFIER RECOMMENDED BY FIBER-MULCH MANUFACTURER FOR SLURRY APPLICATION; NONTOXIC AND FREE OF PLANT-GROWTH OR GERMINATION INHIBITORS.

PESTICIDES

1. 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.
2. 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.
3. POST-EMERGENT HERBICIDE (SELECTIVE AND NONSELECTIVE): EFFECTIVE FOR CONTROLLING WEED GROWTH THAT HAS ALREADY GERMINATED.

EROSION-CONTROL MATERIALS

1. 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.
2. 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.

EXAMINATION

1. EXAMINE AREAS TO BE PLANTED FOR COMPLIANCE WITH REQUIREMENTS AND OTHER CONDITIONS AFFECTING INSTALLATION AND PERFORMANCE OF THE WORK.
 - a. 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.
 - b. SUSPEND PLANTING OPERATIONS DURING PERIODS OF EXCESSIVE SOIL MOISTURE UNTIL THE MOISTURE CONTENT REACHES ACCEPTABLE LEVELS TO ATTAIN THE REQUIRED RESULTS.
 - c. UNIFORMLY MOISTEN EXCESSIVELY DRY SOIL THAT IS NOT WORKABLE OR WHICH IS DUSTY.
2. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

3. 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 ENGINEER AND REPLACE WITH NEW PLANTING SOIL.

PREPARATION

1. PROTECT STRUCTURES; UTILITIES; SIDEWALKS; PAVEMENTS; AND OTHER FACILITIES, TREES, SHRUBS, AND PLANTINGS FROM DAMAGE CAUSED BY PLANTING OPERATIONS.
 - a. PROTECT ADJACENT AND ADJOINING AREAS FROM HYDROMULCHING OVERSPRAY.
 - b. PROTECT GRADE STAKES SET BY OTHERS UNTIL DIRECTED TO REMOVE THEM.
2. 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.

TURFGRASS/MEADOW AREA PREPARATION

1. GENERAL: PREPARE PLANTING AREA FOR SOIL PLACEMENT AND MIX PLANTING SOIL ACCORDING TO "ITEM 653 - TOPSOIL, AS PER PLAN".
2. PLACING PLANTING SOIL: PLACE AND MIX PLANTING SOIL PER "ITEM 653 - TOPSOIL, AS PER PLAN".
3. MOISTEN PREPARED AREA BEFORE PLANTING IF SOIL IS DRY. WATER THOROUGHLY AND ALLOW SURFACE TO DRY BEFORE PLANTING. DO NOT CREATE MUDDY SOIL.
4. BEFORE PLANTING, OBTAIN ENGINEER'S ACCEPTANCE OF FINISH GRADING; RESTORE PLANTING AREAS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING.

TURFGRASS SEEDING

1. SLIT OR DRILL TURF SEED WITH SEEDING MACHINE. DO NOT DROP SEED WHEN WIND VELOCITY EXCEEDS 5 MPH.
 - a. EVENLY DISTRIBUTE SEED BY SOWING EQUAL QUANTITIES IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.
 - b. DO NOT USE WET SEED OR SEED THAT IS MOLDY OR OTHERWISE DAMAGED.
 - c. DO NOT SEED AGAINST EXISTING TREES. LIMIT EXTENT OF SEED TO OUTSIDE EDGE OF PLANTING SAUCER.
2. INSTALL SEED AT A TOTAL RATE OF 8 LB/1000 SQ. FT..
3. WATER WITH FINE SPRAY.
4. PROTECT SEEDED AREAS WITH SLOPES EXCEEDING 1:4 WITH EROSION-CONTROL BLANKETS AND ALL OTHER SEEDED AREAS WITH EROSION-CONTROL FIBER MESH INSTALLED AND STAPLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. OVERSEED TURF AREA EIGHT (8) WEEKS AFTER INITIAL SEEDING OPERATION AT A RATE OF 5 LBS/1000 SQ. FT., IF INITIAL SEEDING HAS NOT PROVIDED A MINIMUM OF 90% COVERAGE OVER ANY 10 SQ. FT., OR IF BARE AREAS GREATER THE 3 BY 3 INCHES ARE PRESENT.

MEADOW SEEDING

1. SLIT OR DRILL MEADOW SEED WITH SEEDING MACHINE. DO NOT DROP SEED WHEN WIND VELOCITY EXCEEDS 5 MPH.
 - a. EVENLY DISTRIBUTE SEED BY SOWING EQUAL QUANTITIES IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER.
 - b. DO NOT USE WET SEED OR SEED THAT IS MOLDY OR OTHERWISE DAMAGED.
 - c. DO NOT SEED AGAINST EXISTING TREES. LIMIT EXTENT OF SEED TO OUTSIDE EDGE OF PLANTING SAUCER.
2. SOW SEED AT A RATE RECOMMENDED BY THE MANUFACTURER.
3. BRUSH SEED INTO TOP 1/16 INCH OF SOIL, ROLL LIGHTLY, AND WATER WITH FINE SPRAY.
4. PROTECT SEEDED AREAS WITH SLOPES EXCEEDING 1:4 WITH EROSION-CONTROL BLANKETS AND ALL OTHER SEEDED AREAS WITH EROSION-CONTROL FIBER MESH INSTALLED AND STAPLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. WATER NEWLY PLANTED AREAS AND KEEP MOIST UNTIL MEADOW IS ESTABLISHED.

HYDROMULCHING

1. HYDROMULCHING: MIX SPECIFIED COMMERCIAL FERTILIZER AND FIBER MULCH IN WATER, USING EQUIPMENT SPECIFICALLY DESIGNED FOR HYDROMULCH APPLICATION. CONTINUE MIXING UNTIL UNIFORMLY BLENDED INTO HOMOGENEOUS SLURRY SUITABLE FOR HYDRAULIC APPLICATION.
 - a. MIX SLURRY WITH NONASPHALTIC TACKIFIER.
 - b. SPRAY-APPLY SLURRY UNIFORMLY TO ALL AREAS, AFTER SEEDING, IN A TWO-STEP PROCESS. APPLY FIRST SLURRY COAT AT A RATE SO THAT MULCH COMPONENT IS DEPOSITED AT NOT LESS THAN 500-LB/ACRE DRY WEIGHT. APPLY SLURRY COVER COAT OF FIBER MULCH (HYDROMULCHING) AT A RATE OF 1000 LB/ACRE.

TURF RENOVATION

1. RENOVATE EXISTING TURF WHERE INDICATED.
2. RENOVATE TURF DAMAGED BY CONTRACTOR'S OPERATIONS, SUCH AS STORAGE OF MATERIALS OR EQUIPMENT AND MOVEMENT OF VEHICLES.
 - a. REESTABLISH TURF WHERE SETTLEMENT OR WASHOUTS OCCUR OR WHERE MINOR REGRADING IS REQUIRED.
 - b. INSTALL NEW PLANTING SOIL AS REQUIRED.
3. REMOVE SOD AND VEGETATION FROM DISEASED OR UNSATISFACTORY TURF AREAS; DO NOT BURY IN SOIL.
4. 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.
5. MOW, DETATCH, CORE AERATE, AND RAKE EXISTING TURF.
6. REMOVE WEEDS BEFORE SEEDING. WHERE WEEDS ARE EXTENSIVE, APPLY SELECTIVE HERBICIDES AS REQUIRED. DO NOT USE PRE-EMERGENCE HERBICIDES.
7. REMOVE WASTE AND FOREIGN MATERIALS, INCLUDING WEEDS, SOIL CORES, GRASS, VEGETATION, AND TURF, AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.
8. TILL STRIPPED, BARE, AND COMPACTED AREAS THOROUGHLY TO A SOIL DEPTH OF 6 INCHES.
9. APPLY 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.
 - a. INITIAL FERTILIZER: COMMERCIAL FERTILIZER APPLIED ACCORDING TO MANUFACTURER'S RECOMMENDATIONS.
10. APPLY SEED AND PROTECT AS REQUIRED FOR NEW TURF.
11. WATER TURF AS SPECIFIED IN "TURF MAINTENANCE" SECTION.

TURF MAINTENANCE

1. 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.

- a. 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.
 - b. IN AREAS WHERE MULCH HAS BEEN DISTURBED BY WIND OR MAINTENANCE OPERATIONS, ADD NEW MULCH AND ANCHOR AS REQUIRED TO PREVENT DISPLACEMENT.
 - c. 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.
2. 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. WATER SHALL BE SUPPLIED BY CITY VIA EXISTING FIRE HYDRANT. COORDINATE WITH OWNER'S REPRESENTATIVE.
 - a. SCHEDULE WATERING TO PREVENT WILTING, PUDDLING, EROSION, AND DISPLACEMENT OF SEED OR MULCH. LAY OUT TEMPORARY WATERING SYSTEM TO AVOID WALKING OVER MUDDY OR NEWLY PLANTED AREAS.
 - b. UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER, THE CONTRACTOR SHALL WATER THE SEEDED DAILY TO MAINTAIN ADEQUATE SOIL MOISTURE FOR PROPER SEED GERMINATION AND CONTINUE DAILY WATERING FOR NOT LESS THAN 30 DAYS. THEREAFTER, THE CONTRACTOR SHALL APPLY 1/2" OF WATER TWICE WEEKLY UNTIL ACCEPTED.
 3. MOW TURFGRASS AS SOON AS TOP GROWTH IS 4 INCHES TALL. 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:
 - a. MOW TURF TO A HEIGHT OF 2 TO 3 INCHES.
 4. TURF POST-FERTILIZATION: APPLY FERTILIZER AFTER INITIAL MOWING AND WHEN GRASS IS DRY.
 - a. USE FERTILIZER THAT PROVIDES ACTUAL NITROGEN OF 1 LB/1000 SQ. FT. TO TURF AREA.
 - b. 2ND APPLICATION FERTILIZER: APPLY SIX (6) WEEKS AFTER SEEDING OPERATIONS. PROVIDE A HIGH NITROGEN SLOW RELEASE FERTILIZER WITH AN ANALYSIS OF 30-3-10 OR SIMILAR. APPLY AT A RATE TO PROVIDE ACTUAL NITROGEN OF 1 LB/1000 SQ. FT. TO TURF AREA.

SATISFACTORY TURF

1. TURF INSTALLATIONS SHALL MEET THE FOLLOWING CRITERIA AS DETERMINED BY ENGINEER:
 - a. SATISFACTORY SEEDED TURF: AT END OF MAINTENANCE PERIOD, A HEALTHY, UNIFORM, CLOSE STAND OF GRASS HAS BEEN ESTABLISHED, FREE OF WEEDS AND SURFACE IRREGULARITIES, WITH COVERAGE EXCEEDING 90 PERCENT OVER ANY 10 SQ. FT. AND BARE SPOTS NOT EXCEEDING 5 BY 5 INCHES.
2. USE SPECIFIED MATERIALS TO REESTABLISH TURF THAT DOES NOT COMPLY WITH REQUIREMENTS, AND CONTINUE MAINTENANCE UNTIL TURF IS SATISFACTORY.

MEADOW MAINTENANCE

1. MAINTAIN AND ESTABLISH MEADOW BY WATERING, WEEDING, MOWING, TRIMMING, REPLANTING, AND PERFORMING OTHER OPERATIONS AS REQUIRED TO ESTABLISH A HEALTHY, VIABLE MEADOW. ROLL, REGRADE, AND REPLANT BARE OR ERODED AREAS AND REMULCH. PROVIDE MATERIALS AND INSTALLATION THE SAME AS THOSE USED IN THE ORIGINAL INSTALLATION.
 - a. FILL IN AS NECESSARY SOIL SUBSIDENCE THAT MAY OCCUR BECAUSE OF SETTLING OR OTHER PROCESSES. REPLACE MATERIALS AND MEADOW DAMAGED OR LOST IN AREAS OF SUBSIDENCE.
 - b. IN AREAS WHERE MULCH HAS BEEN DISTURBED BY WIND OR MAINTENANCE OPERATIONS, ADD NEW MULCH AND ANCHOR AS REQUIRED TO PREVENT DISPLACEMENT.
 - c. APPLY TREATMENTS AS REQUIRED TO KEEP MEADOW 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.
2. WATERING: INSTALL AND MAINTAIN TEMPORARY PIPING, HOSES, AND MEADOW-WATERING EQUIPMENT TO CONVEY WATER FROM SOURCES AND TO KEEP MEADOW UNIFORMLY MOIST. WATER SHALL BE SUPPLIED BY CITY VIA EXISTING FIRE HYDRANT. COORDINATE WITH OWNER'S REPRESENTATIVE.
 - a. SCHEDULE WATERING TO PREVENT WILTING, PUDDLING, EROSION, AND DISPLACEMENT OF SEED OR MULCH. LAY OUT TEMPORARY WATERING SYSTEM TO AVOID WALKING OVER MUDDY OR NEWLY PLANTED AREAS.
 - b. UNLESS OTHERWISE DIRECTED BY THE CITY ENGINEER, THE CONTRACTOR SHALL WATER THE SEEDED DAILY TO MAINTAIN ADEQUATE SOIL MOISTURE FOR PROPER SEED GERMINATION AND CONTINUE DAILY WATERING FOR NOT LESS THAN 30 DAYS. THEREAFTER, THE CONTRACTOR SHALL APPLY 1/2" OF WATER TWICE WEEKLY UNTIL ACCEPTED.

PESTICIDE APPLICATION

1. 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.
2. POST-EMERGENT HERBICIDES (SELECTIVE AND NONSELECTIVE): APPLY ONLY AS NECESSARY TO TREAT ALREADY-GERMINATED WEEDS AND ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS.

CLEANUP AND PROTECTION

1. PROMPTLY REMOVE SOIL AND DEBRIS CREATED BY TURF/MEADOW WORK FROM PAVED AREAS. CLEAN WHEELS OF VEHICLES BEFORE LEAVING SITE TO AVOID TRACKING SOIL ONTO ROADS, WALKS, OR OTHER PAVED AREAS.
2. REMOVE SURPLUS SOIL AND WASTE MATERIAL, INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH, AND DEBRIS, AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.
3. 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.
4. REMOVE NONDEGRADABLE EROSION-CONTROL MEASURES AFTER GRASS ESTABLISHMENT PERIOD.

MAINTENANCE SERVICE

1. 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:
 - a. SEEDED TURF: 90 DAYS FROM DATE OF SUBSTANTIAL COMPLETION.
 - b. WHEN INITIAL MAINTENANCE PERIOD HAS NOT ELAPSED BEFORE END OF PLANTING SEASON, OR IF TURF IS NOT FULLY ESTABLISHED, CONTINUE MAINTENANCE DURING NEXT PLANTING SEASON.
2. MEADOW MAINTENANCE SERVICE: PROVIDE FULL MAINTENANCE BY SKILLED EMPLOYEES OF LANDSCAPE INSTALLER. MAINTAIN AS REQUIRED IN "MEADOW MAINTENANCE" ARTICLE. BEGIN MAINTENANCE IMMEDIATELY AFTER EACH AREA IS PLANTED AND CONTINUE UNTIL ACCEPTABLE MEADOW IS ESTABLISHED, BUT FOR NOT LESS THAN MAINTENANCE PERIOD BELOW.
 - a. MAINTENANCE PERIOD: 90 DAYS FROM DATE OF SUBSTANTIAL COMPLETION.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



CIVIL ENGINEERING
SURVEYING
LANDSCAPE
ARCHITECTURE
www.kleingers.com
330 Worthington Rd
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SCALE:

N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

APPROVED

2024-004

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ITEM 661 - PLANTS, AS PER PLAN

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE PLANT MATERIAL AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

- 1. PLANT MATERIAL.
- 2. SLOW-RELEASE TREE WATERING BAGS.
- 3. MULCH.

DEFINITIONS

- 1. BACKFILL: THE EARTH USED TO REPLACE OR THE ACT OF REPLACING EARTH IN AN EXCAVATION.
- 2. 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.
- 3. 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.
- 4. FINISH GRADE: ELEVATION OF FINISHED SURFACE OF PLANTING SOIL.
- 5. 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.
- 6. 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.
- 7. PLANTING AREA: AREAS TO BE PLANTED.
- 8. PLANTING SOIL: SEE ITEM 653 - PLANTING SOIL, AS PER PLAN.
- 9. 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.
- 10. 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.
- 11. STEM GIRDLING ROOTS: ROOTS THAT ENCIRCLE THE STEMS (TRUNKS) OF TREES BELOW THE SOIL SURFACE.
- 12. 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.

COORDINATION

COORDINATION WITH TURF/MEADOW AREAS: PLANT TREES, SHRUBS, AND OTHER PLANTS AFTER FINISH GRADES ARE ESTABLISHED AND BEFORE PLANTING TURF/MEADOW 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.

PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

SUBMITTALS

- 1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
- 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.
- 3. SAMPLES FOR VERIFICATION: FOR EACH OF THE FOLLOWING:
 - a. ORGANIC MULCH: 1 QUART VOLUME OF EACH ORGANIC MULCH REQUIRED; IN SEALED PLASTIC BAGS LABELED WITH COMPOSITION OF MATERIALS BY PERCENTAGE OF WEIGHT AND SOURCE OF MULCH. EACH SAMPLE SHALL BE TYPICAL OF THE LOT OF MATERIAL TO BE FURNISHED; PROVIDE AN ACCURATE REPRESENTATION OF COLOR, TEXTURE, AND ORGANIC MAKEUP.
 - b. SLOW-RELEASE, TREE-WATERING DEVICE: ONE UNIT OF EACH SIZE REQUIRED.
- 4. 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.
- 5. PRODUCT CERTIFICATES: FOR EACH TYPE OF MANUFACTURED PRODUCT, FROM MANUFACTURER, AND COMPLYING WITH THE FOLLOWING:
 - a. MANUFACTURER'S CERTIFIED ANALYSIS OF STANDARD PRODUCTS.
 - b. ANALYSIS OF OTHER MATERIALS BY A RECOGNIZED LABORATORY MADE ACCORDING TO METHODS ESTABLISHED BY THE ASSOCIATION OF OFFICIAL ANALYTICAL CHEMISTS, WHERE APPLICABLE.
- 6. PESTICIDES AND HERBICIDES: PRODUCT LABEL AND MANUFACTURER'S APPLICATION INSTRUCTIONS SPECIFIC TO PROJECT.
- 7. SAMPLE WARRANTY: FOR SPECIAL WARRANTY.
- 8. MAINTENANCE DATA: RECOMMENDED PROCEDURES TO BE ESTABLISHED BY OWNER FOR MAINTENANCE OF PLANTS DURING A CALENDAR YEAR. SUBMIT BEFORE EXPIRATION OF REQUIRED MAINTENANCE PERIODS.

QUALITY ASSURANCE

- 1. INSTALLER QUALIFICATIONS: A QUALIFIED LANDSCAPE INSTALLER WHOSE WORK HAS RESULTED IN SUCCESSFUL ESTABLISHMENT OF PLANTS.
 - a. PROFESSIONAL MEMBERSHIP: INSTALLER SHALL BE A MEMBER IN GOOD STANDING OF EITHER THE PROFESSIONAL LANDSCAPE NETWORK OR THE AMERICAN NURSERY AND LANDSCAPE ASSOCIATION.
 - b. EXPERIENCE: FIVE YEARS' EXPERIENCE IN LANDSCAPE INSTALLATION.
 - c. INSTALLER'S FIELD SUPERVISION: REQUIRE INSTALLER TO MAINTAIN AN EXPERIENCED FULL-TIME SUPERVISOR ON PROJECT SITE WHEN WORK IS IN PROGRESS.
 - d. PERSONNEL CERTIFICATIONS: INSTALLER'S FIELD SUPERVISOR SHALL HAVE CERTIFICATION IN ALL OF THE FOLLOWING CATEGORIES FROM THE PROFESSIONAL LANDSCAPE NETWORK:
 - 1) LANDSCAPE INDUSTRY CERTIFIED TECHNICIAN - EXTERIOR.
 - 2) LANDSCAPE INDUSTRY CERTIFIED HORTICULTURAL TECHNICIAN.
- 2. PESTICIDE APPLICATOR: STATE LICENSED, COMMERCIAL.
- 3. PROVIDE QUALITY, SIZE, GENUS, SPECIES, AND VARIETY OF PLANTS INDICATED, COMPLYING WITH APPLICABLE REQUIREMENTS IN ANSI Z60.1.
- 4. MEASUREMENTS: MEASURE ACCORDING TO ANSI Z60.1. DO NOT PRUNE TO OBTAIN REQUIRED SIZES.
 - a. 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 ABOVE THE ROOT FLARE FOR TREES UP TO 4-INCH CALIPER SIZE, AND 12 INCHES ABOVE THE ROOT FLARE FOR LARGER SIZES.
 - b. OTHER PLANTS: MEASURE WITH STEMS, PETIOLES, AND FOLIAGE IN THEIR NORMAL POSITION.
- 5. PLANT MATERIAL OBSERVATION: ENGINEER 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. ENGINEER 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.
 - a. NOTIFY ENGINEER OF SOURCES OF PLANTING MATERIALS SEVEN DAYS IN ADVANCE OF DELIVERY TO SITE.

DELIVERY, STORAGE, AND HANDLING

- 1. 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.

BULK MATERIALS:

- a. DO NOT DUMP OR STORE BULK MATERIALS NEAR STRUCTURES, UTILITIES, WALKWAYS AND PAVEMENTS, OR ON EXISTING TURF AREAS OR PLANTS.
 - b. 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.
 - c. ACCOMPANY EACH DELIVERY OF BULK MATERIALS WITH APPROPRIATE CERTIFICATES.
- 3. 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.
 - 4. HANDLE PLANTING STOCK BY ROOT BALL.
 - 5. 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.
 - 6. 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:
 - a. SET BALLED STOCK ON GROUND AND COVER BALL WITH SOIL, PEAT MOSS, SAWDUST, OR OTHER ACCEPTABLE MATERIAL.
 - b. DO NOT REMOVE CONTAINER-GROWN STOCK FROM CONTAINERS BEFORE TIME OF PLANTING.
 - c. 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.

FIELD CONDITIONS

- 1. 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.
- 2. PLANTING RESTRICTIONS: PLANT DURING ONE OF THE FOLLOWING PERIODS. COORDINATE PLANTING PERIODS WITH MAINTENANCE PERIODS TO PROVIDE REQUIRED MAINTENANCE FROM DATE OF SUBSTANTIAL COMPLETION.
 - a. FALL PLANTING: SEPTEMBER 1 TO NOVEMBER 1.
- 3. 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.

WARRANTY

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 NEGLIGENCE 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.

PLANT MATERIAL

- 1. 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.
 - a. TREES WITH DAMAGED, CROOKED, OR MULTIPLE LEADERS; TIGHT VERTICAL BRANCHES WHERE BARK IS SQUEEZED BETWEEN TWO BRANCHES OR TRUNK (INCLUDED BARK); CROSSING TRUNKS; CUT-OFF LIMBS MORE THAN 3/4 INCH IN DIAMETER; OR WITH STEM GIRDLING ROOTS ARE UNACCEPTABLE.
 - b. 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.
- 2. 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 ENGINEER, WITH A PROPORTIONATE INCREASE IN SIZE OF ROOTS OR BALLS.
- 3. 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.
- 4. 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.
- 5. 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.

FERTILIZERS: REFER TO PLANTING SOIL SPECIFICATION.

MULCHES

- ORGANIC MULCH: FREE FROM DELETERIOUS MATERIALS AND SUITABLE AS A TOP DRESSING OF TREES AND SHRUBS, CONSISTING OF ONE OF THE FOLLOWING:
 - 1. TYPE: DOUBLE-SHREDDED HARDWOOD.
 - 2. SIZE RANGE: 3 INCHES MAXIMUM, 1/2 INCH MINIMUM.
 - 3. COLOR: NATURAL.
- PESTICIDES
 - 1. 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.
 - 2. 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.
 - 3. POST-EMERGENT HERBICIDE (SELECTIVE AND NONSELECTIVE): EFFECTIVE FOR CONTROLLING WEED GROWTH THAT HAS ALREADY GERMINATED.

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. FLEXIBLE TIES: WIDE RUBBER OR ELASTIC BANDS OR STRAPS OF LENGTH REQUIRED TO REACH STAKES OR TURNBUCKLES.
- 3. GUYS AND TIE WIRES: ASTM A 641/A 641M, CLASS 1, GALVANIZED-STEEL WIRE, TWO-STRAND, TWISTED, 0.106 INCH IN DIAMETER.

- 4. TREE-TIE WEBBING: UV-RESISTANT POLYPROPYLENE OR NYLON WEBBING WITH BRASS GROMMETS.
- 5. GUY CABLES: FIVE-STRAND, 3/16-INCH-DIAMETER, GALVANIZED-STEEL CABLE, WITH ZINC-COATED TURNBUCKLES, A MINIMUM OF 3 INCHES LONG, WITH TWO 3/8-INCH GALVANIZED EYEBOLTS.
- 6. FLAGS: STANDARD SURVEYOR'S PLASTIC FLAGGING TAPE, WHITE, 6 INCHES LONG.

SLOW-RELEASE TREE WATERING DEVICE: STANDARD PRODUCT MANUFACTURED FOR DRIP IRRIGATION OF PLANTS AND EMPTYING ITS WATER CONTENTS OVER AN EXTENDED TIME PERIOD; MANUFACTURED FROM UV-LIGHT-STABILIZED NYLON-REINFORCED POLYETHYLENE SHEET, PVC, OR HDPE PLASTIC.

- 1. PRODUCT: TREGGART ORIGINAL SLOW RELEASE WATERING BAG
 - a. COLOR: GREEN.

MISCELLANEOUS PRODUCTS

- 1. BURLAP: NON-SYNTHETIC, BIODEGRADABLE.

EXAMINATION

- 1. EXAMINE AREAS TO RECEIVE PLANTS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS AND CONDITIONS AFFECTING INSTALLATION AND PERFORMANCE OF THE WORK.
 - a. VERIFY THAT NO FOREIGN OR DELETERIOUS MATERIAL OR LIQUID SUCH AS PAINT, PAINT WASHOUT, CONCRETE SLURRY, CONCRETE LAYERS OR CHUKYS, CEMENT, PLASTER, OILS, GASOLINE, DIESEL FUEL, PAINT THINNER, TURPENTINE, TAR, ROOFING COMPOUND, OR ACID HAS BEEN DEPOSITED IN SOIL WITHIN A PLANTING AREA.
 - b. VERIFY THAT PLANTS AND VEHICLES LOADED WITH PLANTS CAN TRAVEL TO PLANTING LOCATIONS WITH ADEQUATE OVERHEAD CLEARANCE.
 - c. SUSPEND PLANTING OPERATIONS DURING PERIODS OF EXCESSIVE SOIL MOISTURE UNTIL THE MOISTURE CONTENT REACHES ACCEPTABLE LEVELS TO ATTAIN THE REQUIRED RESULTS.
 - d. UNIFORMLY MOISTEN EXCESSIVELY DRY SOIL THAT IS NOT WORKABLE OR WHICH IS DUSTY.
- 2. 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 ENGINEER AND REPLACE WITH NEW PLANTING SOIL.
- 3. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

PREPARATION

- 1. PROTECT STRUCTURES, UTILITIES, SIDEWALKS, PAVEMENTS, AND OTHER FACILITIES AND TURF AREAS AND EXISTING PLANTS FROM DAMAGE CAUSED BY PLANTING OPERATIONS.
- 2. 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.

PLANTING AREA ESTABLISHMENT

- 1. GENERAL: PREPARE PLANTING AREA FOR SOIL PLACEMENT AND MIX PLANTING SOIL ACCORDING TO PLANTING SOIL SPECIFICATIONS.
- 2. PLACING PLANTING SOIL: PLACE AND MIX PLANTING SOIL ACCORDING TO PLANTING SOIL SPECIFICATION
- 3. BEFORE PLANTING, OBTAIN ENGINEER'S ACCEPTANCE OF FINISH GRADING; RESTORE PLANTING AREAS IF ERODED OR OTHERWISE DISTURBED AFTER FINISH GRADING.

EXCAVATION FOR TREES AND SHRUBS

- 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 SMOOED OR SMOOTHED DURING EXCAVATION.
 - 2. EXCAVATE APPROXIMATELY THREE TIMES AS WIDE AS BALL DIAMETER FOR BALLED AND BURLAPPED AND CONTAINER-GROWN STOCK.
 - 3. DO NOT EXCAVATE DEEPER THAN DEPTH OF THE ROOT BALL, MEASURED FROM THE ROOT FLARE TO THE BOTTOM OF THE ROOT BALL.
 - 4. 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.
 - 5. MAINTAIN ANGLES OF REPOSE OF ADJACENT MATERIALS TO ENSURE STABILITY. DO NOT EXCAVATE SUBGRADES OF ADJACENT PAVING, STRUCTURES, HARDCAPES, OR OTHER NEW OR EXISTING IMPROVEMENTS.
 - 6. MAINTAIN SUPERVISION OF EXCAVATIONS DURING WORKING HOURS.
 - 7. KEEP EXCAVATIONS COVERED OR OTHERWISE PROTECTED WHEN UNATTENDED BY INSTALLER'S PERSONNEL.

BACKFILL SOIL: SUBSOIL AND TOPSOIL REMOVED FROM EXCAVATIONS MAY NOT BE USED AS BACKFILL SOIL UNLESS OTHERWISE INDICATED.

OBSTRUCTIONS: NOTIFY ENGINEER IF UNEXPECTED ROCK OR OBSTRUCTIONS DETRIMENTAL TO TREES OR SHRUBS ARE ENCOUNTERED IN EXCAVATIONS.

DRAINAGE LAYER: DRILL 6-INCH-DIAMETER HOLES, 24 INCHES APART, INTO FREE-DRAINING STRATA OR TO A DEPTH OF 10 FEET, WHICHEVER IS LESS, AND BACKFILL WITH FREE-DRAINING MATERIAL.

DRAINAGE: NOTIFY ENGINEER IF SUBSOIL CONDITIONS EVIDENCE UNEXPECTED WATER SEEPAGE OR RETENTION IN TREE OR SHRUB PLANTING PITS.

TREE, SHRUB, AND VINE PLANTING

- 1. 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.
- 2. REMOVE STEM GIRDLING ROOTS AND KINKED ROOTS. REMOVE INJURED ROOTS BY CUTTING CLEANLY; DO NOT BREAK.
- 3. 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.
 - a. BACKFILL: PLANTING SOIL PER PLANTING SOILS SPECIFICATION.
 - b. 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.
 - c. 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.
 - d. CONTINUE BACKFILLING PROCESS. WATER AGAIN AFTER PLACING AND TAMPING FINAL LAYER OF SOIL.
- 4. CONTAINER-GROWN STOCK: SET EACH PLANT PLUMB AND IN CENTER OF PLANTING PIT OR TRENCH WITH ROOT FLARE 1 INCH ABOVE ADJACENT FINISH GRADES.
 - a. BACKFILL: PLANTING SOIL PER PLANTING SOILS SPECIFICATION.
 - b. CAREFULLY REMOVE ROOT BALL FROM CONTAINER WITHOUT DAMAGING ROOT BALL OR PLANT.
 - c. 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.
 - d. CONTINUE BACKFILLING PROCESS. WATER AGAIN AFTER PLACING AND TAMPING FINAL LAYER OF SOIL.
- 5. 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.

MECHANIZED TREE-SPADE PLANTING

- 1. TREES MAY BE PLANTED WITH AN APPROVED MECHANIZED TREE SPADE AT THE DESIGNATED LOCATIONS. DO NOT USE TREE SPADE TO MOVE TREES LARGER THAN THE MAXIMUM SIZE ALLOWED FOR A SIMILAR FIELD-GROWN, BALLED-AND-BURLAPPED ROOT-BALL DIAMETER ACCORDING TO ANSI Z60.1, OR LARGER THAN MANUFACTURER'S MAXIMUM SIZE RECOMMENDATION FOR THE TREE SPADE BEING USED, WHICHEVER IS SMALLER.
- 2. USE THE SAME TREE SPADE TO EXCAVATE THE PLANTING HOLE AS WILL BE USED TO EXTRACT AND TRANSPORT THE TREE.
- 3. WHEN EXTRACTING THE TREE, CENTER THE TRUNK WITHIN THE TREE SPADE AND MOVE TREE WITH A SOLID BALL OF

- EARTH.
- 4. CUT EXPOSED ROOTS CLEANLY DURING TRANSPLANTING OPERATIONS.
- 5. PLANT TREES FOLLOWING PROCEDURES IN "TREE, SHRUB, AND VINE PLANTING" ARTICLE.
- 6. WHERE POSSIBLE, ORIENT THE TREE IN THE SAME DIRECTION AS IN ITS ORIGINAL LOCATION.

TREE, SHRUB, AND VINE PRUNING

- 1. REMOVE ONLY DEAD, DYING, OR BROKEN BRANCHES. DO NOT PRUNE FOR SHAPE.
- 2. DO NOT APPLY PRUNING PAINT TO WOUNDS.

TREE STABILIZATION

TRUNK STABILIZATION BY STAKING AND GUYING: INSTALL TRUNK STABILIZATION AS FOLLOWS UNLESS OTHERWISE INDICATED ON DRAWINGS. STAKE AND GUY TREES MORE THAN 12 FEET IN HEIGHT AND MORE THAN 3 INCHES IN CALIPER UNLESS OTHERWISE INDICATED.

- 1. SITE-FABRICATED, STAKING-AND-GUYING METHOD: INSTALL NO FEWER THAN THREE GUYS SPACED EQUALLY AROUND TREE.
 - a. SECURELY ATTACH GUYS TO STAKES 36 INCHES LONG, DRIVEN TO GRADE. ADJUST SPACING TO AVOID PENETRATING ROOT BALLS OR ROOT MASSES. PROVIDE TURNBUCKLE FOR EACH GUY WIRE AND TIGHTEN SECURELY.
 - b. 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.
 - c. SUPPORT TREES WITH GUY CABLE OR MULTIPLE STRANDS OF THE WIRE, 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.
 - d. ATTACH FLAGS TO EACH GUY WIRE, 30 INCHES ABOVE FINISH GRADE.

GROUND COVER AND PLANT PLANTING

- 1. SET OUT AND SPACE GROUND COVER AND PLANTS OTHER THAN TREES, SHRUBS, AND VINES AS INDICATED ON DRAWINGS IN EVEN ROWS WITH TRIANGULAR SPACING.
- 2. USE PLANTING SOIL PER PLANTING SOIL SPECIFICATION FOR BACKFILL.
- 3. DIG HOLES LARGE ENOUGH TO ALLOW SPREADING OF ROOTS.
- 4. 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.
- 5. WORK SOIL AROUND ROOTS TO ELIMINATE AIR POCKETS AND LEAVE A SLIGHT SAUCER INDENTATION AROUND PLANTS TO HOLD WATER.
- 6. WATER THOROUGHLY AFTER PLANTING, TAKING CARE NOT TO COVER PLANT CROWNS WITH WET SOIL.
- 7. PROTECT PLANTS FROM HOT SUN AND WIND; REMOVE PROTECTION IF PLANTS SHOW EVIDENCE OF RECOVERY FROM TRANSPLANTING SHOCK.

PLANTING AREA MULCHING

- MULCH BACKFILLED SURFACES OF PLANTING AREAS AND OTHER AREAS INDICATED.
 - 1. TREES IN TURF AREAS: APPLY ORGANIC MULCH RING OF 3-INCH AVERAGE THICKNESS, WITH 18-INCH RADIUS AROUND TRUNKS OR STEMS. DO NOT PLACE MULCH WITHIN 3 INCHES OF TRUNKS OR STEMS.
 - 2. ORGANIC MULCH IN PLANTING AREAS: APPLY 2-INCH AVERAGE THICKNESS OF ORGANIC MULCH OVER WHOLE SURFACE OF PLANTING AREA, AND FINISH LEVEL WITH ADJACENT FINISH GRADES. DO NOT PLACE MULCH WITHIN 3 INCHES OF TRUNKS OR STEMS.

EDGING INSTALLATION

- 1. SHOVEL-CUT EDGING: SEPARATE MULCHED AREAS FROM TURF AREAS, CURBS, AND PAVING WITH A 45-DEGREE, 4- TO 6-INCH-DEEP, SHOVEL-CUT EDGE.

INSTALLING SLOW-RELEASE TREE WATERING BAG

- 1. PROVIDE ONE DEVICE FOR EACH TREE
- 2. PLACE DEVICE ON TOP OF THE MULCH AT BASE OF TREE STEM AND FILL WITH WATER ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.

PLANT MAINTENANCE

- 1. MAINTAIN PLANTINGS BY PRUNING, CULTIVATING, WATERING, WEEDING, FERTILIZING, MULCHING, RESTORING PLANTING SAUCERS, ADJUSTING AND REPAIRING TREE-STABILIZATION DEVICES, RESETTling TO PROPER GRADES OR VERTICAL POSITION, AND PERFORMING OTHER OPERATIONS AS REQUIRED TO ESTABLISH HEALTHY, VIABLE PLANTINGS.
- 2. 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.
- 3. 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.
- 4. WATER SHRUBS DAILY FOR FIRST 2 WEEK. THEREAFTER, WATER SHRUBS 2-3 TIMES WEEKLY UNTIL END OF MAINTENANCE PERIOD.
- 5. FILL SLOW-RELEASE TREE WATERING BAGS WEEKLY UNTIL END OF MAINTENANCE PERIOD.

PESTICIDE APPLICATION

- 1. 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.
- 2. 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.
- 3. POST-EMERGENT HERBICIDES (SELECTIVE AND NONSELECTIVE): APPLY ONLY AS NECESSARY TO TREAT ALREADY-GERMINATED WEEDS AND ACCORDING TO MANUFACTURER'S WRITTEN RECOMMENDATIONS.

REPAIR AND REPLACEMENT

- GENERAL: REPAIR OR REPLACE EXISTING OR NEW TREES AND OTHER PLANTS THAT ARE DAMAGED BY CONSTRUCTION OPERATIONS, IN A MANNER APPROVED BY ENGINEER.
 - 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 ENGINEER.

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 ENGINEER DETERMINES ARE INCAPABLE OF RESTORING TO NORMAL GROWTH PATTERN.

- 1. PROVIDE NEW PLANTS OF SAME SIZE AND SPECIES AS THOSE BEING REPLACED.

CLEANING AND PROTECTION

- 1. 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.
- 2. REMOVE SURPLUS SOIL AND WASTE MATERIAL INCLUDING EXCESS SUBSOIL, UNSUITABLE SOIL, TRASH, AND DEBRIS AND LEGALLY DISPOSE OF THEM OFF OWNER'S PROPERTY.
- 3. 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.
- 4. AFTER INSTALLATION AND BEFORE PROJECT COMPLETION, REMOVE NURSERY TAGS, NURSERY STAKES, TIE TAPE, LABELS, WIRE, BURLAP, AND OTHER DEBRIS FROM PLANT MATERIAL, PLANTING AREAS, AND PROJECT SITE.
- 5. AT TIME OF SUBSTANTIAL COMPLETION, VERIFY THAT SLOW-RELEASE TREE WATERING BAGS ARE IN GOOD WORKING ORDER AND LEAVE THEM IN PLACE. REPLACE IMPROPERLY FUNCTIONING DEVICES.

MAINTENANCE SERVICE

- MAINTENANCE SERVICE FOR 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: 12 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION.

REVISIONS	
MARK	DATE

ITEM SPECIAL - SPECIALTY ASPHALT PAVEMENT SURFACE COURSE, TYPE 1 (448), PG64-22

ITEM SPECIAL - SPECIALTY ASPHALT PAVEMENT INTERMEDIATE COURSE, TYPE 2 (448), PG64-22

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE SPECIALTY ASPHALT PAVEMENT AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

DEFINITIONS

- HOT-MIX ASPHALT (HMA) PAVING TERMINOLOGY: REFER TO ASTM D 8 FOR DEFINITIONS OF TERMS.
- LOW VOLUME ASPHALT CONCRETE: MIXTURE OF DENSE (AKA WELL) GRADED AGGREGATE AND SPECIFIED TYPE AND GRADE OF ASPHALT BINDER.
- SURFACE COURSE: THE LOW VOLUME SURFACE / WEARING COURSE SHALL BE INSTALLED UNIFORMLY, TO ALL FINISHED LINES AND GRADES, SMOOTH, DURABLE, IMPERVIOUS THUS PROTECTING LOWER LAYERS, AND STABLE. WORKMANSHIP OF THE FINISHED SURFACE COURSE SHALL BE OF THE HIGHEST INDUSTRY STANDARDS (NAPA, AI, ASBA, AND NHI REFERENCES) AND APPLICABLE TO SPORTS SURFACES PRIOR TO ACCEPTANCE BY THE OWNER.
- LEVELING COURSE: THE COURSE AND LOCATION OF THE RECREATIONAL AREA THAT REQUIRES PLACEMENT OF A VARIABLE THICKNESS OF HMA TO 'TRUE UP' THE AREA PRIOR TO PLACEMENT OF THE SURFACE COURSE. THIS COURSE HAS A MAXIMUM AGGREGATE SIZE (MAS) NO GREATER THAN THAT OF THE SURFACE COURSE.
- BASE COURSE: THE LOWER COURSES OF THE PAVEMENT STRUCTURE BELOW THE SURFACE AND LEVELING COURSE WITH A MAS OF BETWEEN 3/4" AND 1". BASE COURSES SHALL NOT BE ALLOWED TO REMAIN WITHOUT THE SURFACE COURSE PLACED OVER AN EXTENDED PERIOD OF TIME AND AS APPROVED BY THE ENGINEER. THE BASE SHALL BE KEPT CLEAN AND MUST BE COMPLETELY DRY BEFORE PROCEEDING. IF THE MINIMUM THICKNESSES SHOWN ABOVE CANNOT BE MET THEN INSTALL SURFACE MIXTURE AS BASE COURSE.
- TACKING / PRIMING: THE PROCESS OF APPLYING ONE COAT OF EMULSIFIED ASPHALT TO ALL HORIZONTAL AND VERTICAL SURFACES OF EITHER AN EXISTING PAVEMENT FOR AN OVERLAY OR BETWEEN LIFTS WHILE BUILDING AN IMPROVED OR NEW STRUCTURE (TACKING), OR UPON THE AGGREGATE BASE (PRIMING).

SUBMITTALS

- CONTRACTORS PROPOSED ASPHALT MIXTURE DESIGN SHEETS FOR HMA TO BE PLACED FOR EACH OF THE USES ANTICIPATED ON THE PROJECT; PATCHING, BASE, LEVELING, AND/OR SURFACE COURSE. DESIGN SHEETS SHALL INCLUDE THE FOLLOWING:
 - ALL AGGREGATE GRADATIONS AND QUALITY MEASUREMENTS
 - PLOT (0.45 POWER GRAPH) OF FINAL AGGREGATE BLEND
 - BULK (DRY) SPECIFIC GRAVITY OF ALL AGGREGATES AND FINAL BLEND (GSB) INCLUDING WORKSHEETS FOR NATURAL (VIRGIN) AS WELL AS RECLAIMED ASPHALT PAVEMENT (RAP).
 - STATEMENT OF ASPHALT BINDER (PG) BEING USED IN ASPHALT MIXTURE
 - OPTIMUM % ASPHALT BINDER (PB)
 - MIX AIR VOIDS AT OPTIMUM (VA)
 - BULK SPECIFIC GRAVITY OF MIX AT OPTIMUM (GMB)
 - THEORETICAL MAXIMUM SPECIFIC GRAVITY AT OPTIMUM (GMM)
 - VOIDS IN THE MINERAL AGGREGATE (VMA) AND VOIDS FILLED WITH ASPHALT (VFA)
 - DUST TO TOTAL AC RATIO
 - ALL DESIGN DATA AND ASSOCIATED DESIGN CURVES
- PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED. INCLUDE TECHNICAL DATA AND TESTED PHYSICAL AND PERFORMANCE PROPERTIES.
- STATEMENT OF UNDERSTANDING AND COMPLIANCE: STATEMENT ON CONTRACTOR'S LETTERHEAD INDICATING THAT THE FULL REQUIREMENTS OF THE SPORT SURFACING MANUFACTURER AND PRODUCT TO BE USED FOR THIS PROJECT HAVE BEEN READ AND FULLY UNDERSTOOD AND THAT ALL REQUIRED SUBSTRATE TOLERANCES AND CONDITIONS REQUIRED BY THE SPORT SURFACING MANUFACTURER WILL BE PROVIDED, ATTACH LETTER TO A COPY OF THE DETAILED REQUIREMENTS OF THE SPORT SURFACING MANUFACTURER FOR THE SPECIFIC PRODUCT TO BE INSTALLED.
- ASPHALT PLACEMENT WORK PLAN INCLUDING BUT NOT LIMITED TO PAVING PASS WIDTHS, PAVING DIRECTIONS, SITE ACCESS, AND TIMING/COORDINATION OF ATHLETIC EQUIPMENT (TENNIS NET POSTS, VAULT BOXES, FENCING, ETC.).
- QUALIFICATION DATA: QUALIFIED MANUFACTURER SHALL PROVIDE THE FOLLOWING:
 - APPROVED VENDOR CERTIFICATE FOR THE LOCALITY (STATE/COUNTY/CITY, ET. AL) WHERE WORK IS BEING PERFORMED.
 - QUALITY CONTROL MANUAL FOR MATERIAL PRODUCTION OVERSIGHT AND TESTING MEASURES BEING PERFORMED BOTH AT THE ASPHALT PLANTS AS WELL AS ON THE JOB SITE.
- QUALIFICATION DATA: FOR QUALIFIED INSTALLER INCLUDING LIST OF CONTACT REFERENCES. INSTALLER SHALL PROVIDE THE FOLLOWING:
 - QUALITY CONTROL MANUAL FOR MATERIAL PRODUCTION OVERSIGHT AND TESTING MEASURES BEING PERFORMED BOTH AT THE ASPHALT PLANTS AS WELL AS ON THE JOB SITE.
 - LIST/ORGANIZATION CHART SHOWING PERSONNEL RESPONSIBLE FOR USE OF EQUIPMENT AND ACTIONS OF THE CREW ON THE GRADE WHILE PAVING AND COMPACTING ASPHALT.
- MATERIAL CERTIFICATES: FOR EACH PAVING MATERIAL, FROM MANUFACTURER.

QUALITY ASSURANCE

- MANUFACTURER QUALIFICATIONS: A PAVING-MIX MANUFACTURER REGISTERED WITH AND APPROVED BY AUTHORITIES HAVING JURISDICTION OR THE DOT OF STATE IN WHICH PROJECT IS LOCATED.
- INSTALLER QUALIFICATIONS: A FIRM THAT EMPLOYS WORKERS TRAINED AND EXPERIENCED IN THE REQUIREMENTS SPECIFIC TO SPORT SURFACE INSTALLATIONS AND WHO HAS COMPLETED HOT-MIX ASPHALT PAVING FOR SPORT SURFACE INSTALLATIONS SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT AND WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE. CONTRACTOR MUST PROVIDE IN WRITING A LIST OF 10 PROJECTS OF SIMILAR SCOPE COMPLETED IN THE LAST 5 YEARS.
- REGULATORY REQUIREMENTS: COMPLY WITH MATERIALS, WORKMANSHIP, AND OTHER APPLICABLE REQUIREMENTS OF THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATION FOR ASPHALT PAVING WORK.

- PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.
 - REVIEW METHODS AND PROCEDURES RELATED TO HOT-MIX ASPHALT SPORT PAVING INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:
 - REVIEW PROPOSED SOURCES OF PAVING MATERIALS, INCLUDING CAPABILITIES AND LOCATION OF PLANT THAT WILL MANUFACTURE HOT-MIX ASPHALT.
 - REVIEW CONDITION OF SUBGRADE AND PREPARATORY WORK.
 - REVIEW REQUIREMENTS FOR PROTECTING PAVING WORK, INCLUDING RESTRICTION OF TRAFFIC DURING INSTALLATION PERIOD AND FOR REMAINDER OF CONSTRUCTION PERIOD.
 - REVIEW AND FINALIZE CONSTRUCTION SCHEDULE AND VERIFY AVAILABILITY OF MATERIALS, INSTALLER'S PERSONNEL, EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS.

PROJECT CONDITIONS

- ENVIRONMENTAL LIMITATIONS: DO NOT APPLY ASPHALT MATERIALS IF SUBGRADE IS WET OR EXCESSIVELY DAMP, IF RAIN IS IMMINENT OR EXPECTED BEFORE TIME REQUIRED FOR ADEQUATE CURE, OR IF THE FOLLOWING CONDITIONS ARE NOT MET:
 - TACK COAT: MINIMUM SURFACE TEMPERATURE OF 60 DEG F.
 - ASPHALT BASE COURSE: MINIMUM SURFACE TEMPERATURE OF 40 DEG F AND RISING AT TIME OF PLACEMENT.
 - ASPHALT SURFACE COURSE: MINIMUM SURFACE TEMPERATURE OF 60 DEG F AT TIME OF PLACEMENT.
- GRADE CONTROL: ESTABLISH AND MAINTAIN REQUIRED LINES AND ELEVATIONS.

AGGREGATES

- GENERAL: USE MATERIALS COMPLYING WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AS INDICATED ON THE DRAWINGS.
- AGGREGATES KNOWN TO CAUSE RUST SPOTS OR POP-OUTS INCLUDING BUT NOT LIMITED TO STEEL SLAG, IRON PYRITE, AND/OR DUST BALLS, ARE **NOT** PERMITTED IN THE ASPHALT.
- COURSE AGGREGATES: SHALL BE SOUND, ANGULAR CRUSHED STONE OR CRUSHED GRAVEL. SHALL ALSO HAVE A MINIMUM FRACTION OF 85% / 75% CRUSHED FACES.
- FINE AGGREGATES: SHALL BE WELL GRADED, MODERATELY SHARP TO SHARP (ANGULAR) SANDS. SHALL ALSO HAVE AN ANGULARITY > 40% WITH NO MORE THAN 20% NATURAL SAND.
- RECLAIMED ASPHALT PAVEMENT (RAP) IS **NOT** PERMITTED IN THE ASPHALT.
- RECLAIMED ASPHALT SHINGLES (RAS) IS **NOT** PERMITTED IN THE ASPHALT.
- RECYCLED CONCRETE IS **NOT** PERMITTED IN THE ASPHALT.

ASPHALT MATERIALS

- ASPHALT BINDER: USE MATERIALS COMPLYING WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AS INDICATED ON THE DRAWINGS.
- TACK COAT: USE MATERIALS COMPLYING WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AS INDICATED ON THE DRAWINGS.
- WATER: POTABLE.

AUXILIARY MATERIALS

- HERBICIDE: COMMERCIAL CHEMICAL FOR WEED CONTROL, REGISTERED BY THE EPA. PROVIDE IN GRANULAR, LIQUID, OR WETTABLE POWDER FORM.
- SAND: ASTM D 1073, GRADE NOS. 2 OR 3.
- PAVING GEOTEXTILE: AS INDICATED ON DRAWINGS.
- JOINT SEALANT: ASTM D 6690, TYPE II OR III, HOT-APPLIED, SINGLE-COMPONENT, POLYMER-MODIFIED BITUMINOUS SEALANT.

MIXES

- HOT-MIX ASPHALT: DENSE, HOT-LAID, HOT-MIX ASPHALT PLANT MIXTURE COMPLYING WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AS INDICATED ON THE DRAWINGS.
- ALL HMA MIX DESIGNS SHALL MEET THE FOLLOWING REQUIREMENTS, BE LESS THAN 24-MONTHS OLD, AND BE IN ACCORDANCE WITH THE ASPHALT INSTITUTE MANUAL SERIES #2 (MS-2).
- HMA MIX DESIGNS SHALL MEET ONE OF THE FOLLOWING REQUIREMENTS FOR COMPACTIVE EFFORT IN THE LABORATORY (CONTRACTOR'S CHOICE):
 - MARSHALL, 50-BLOW.
 - SUPERPAVE, 50-GYRATION.
 - HVEEM, LOW VOLUME MIX.
- BASE MIXES SHALL HAVE A MINIMUM OF 45% PASSING THE #4 SIEVE.
- SURFACE AND LEVELING MIXES SHALL HAVE A MINIMUM OF 45% PASSING THE #8 SIEVE.

EXAMINATION

- VERIFY THAT SUBGRADE IS DRY AND IN SUITABLE CONDITION TO BEGIN PAVING.
- PROOF-ROLL SUBGRADE BELOW PAVEMENTS WITH HEAVY PNEUMATIC-TIRED EQUIPMENT TO IDENTIFY SOFT POCKETS AND AREAS OF EXCESS YIELDING. DO NOT PROOF-ROLL WET OR SATURATED SUBGRADES. PROOF ROLLING SHALL BE PERFORMED IN THE PRESENCE OF OWNER'S TESTING AGENCY.
 - EXCAVATE SOFT SPOTS, UNSATISFACTORY SOILS, AND AREAS OF EXCESSIVE PUMPING OR RUTTING, AS DETERMINED BY OWNER'S TESTING AGENCY, AND REPLACE WITH COMPACTED BACKFILL OR FILL AS DIRECTED.
- PROCEED WITH PAVING ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

SURFACE PREPARATION

- GENERAL: IMMEDIATELY BEFORE PLACING ASPHALT MATERIALS, REMOVE LOOSE AND DELETERIOUS MATERIAL FROM SUBSTRATE SURFACES. ENSURE THAT PREPARED SUBGRADE IS READY TO RECEIVE PAVING.
- HERBICIDE TREATMENT: APPLY HERBICIDE ACCORDING TO MANUFACTURER'S RECOMMENDED RATES AND WRITTEN APPLICATION INSTRUCTIONS. APPLY TO DRY, PREPARED SUBGRADE OR SURFACE OF COMPACTED-AGGREGATE BASE BEFORE APPLYING PAVING MATERIALS.

PAVING GEOTEXTILE INSTALLATION

PLACE PAVING GEOTEXTILE PROMPTLY ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. BROOM OR ROLL GEOTEXTILE SMOOTH AND FREE OF WRINKLES AND FOLDS. OVERLAP LONGITUDINAL JOINTS 4 INCHES AND TRANSVERSE JOINTS 6 INCHES.

- PROTECT PAVING GEOTEXTILE FROM TRAFFIC AND OTHER DAMAGE AND PLACE AGGREGATE BASE THE SAME DAY.

HOT-MIX ASPHALT PLACING

- GENERAL: ASPHALT MATERIALS SHALL BE PLACED IN ACCORDANCE WITH THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS AS INDICATED ON THE DRAWINGS.
- MACHINE PLACE HOT-MIX ASPHALT ON PREPARED SURFACE, SPREAD UNIFORMLY, AND STRIKE OFF. PLACE ASPHALT MIX BY HAND TO AREAS INACCESSIBLE TO EQUIPMENT IN A MANNER THAT PREVENTS SEGREGATION OF MIX. PLACE EACH COURSE TO REQUIRED GRADE, CROSS SECTION, AND THICKNESS WHEN COMPACTED.
 - PLACE HOT-MIX ASPHALT BASE COURSE IN NUMBER OF LIFTS AND THICKNESSES INDICATED.
 - PLACE HOT-MIX ASPHALT SURFACE COURSE IN SINGLE LIFT.
 - SPREAD MIX AT MINIMUM TEMPERATURE AS PER THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIAL SPECIFICATIONS.
 - BEGIN APPLYING MIX ALONG CENTERLINE OF CROWN FOR CROWNED SECTIONS AND ON HIGH SIDE OF ONE-WAY SLOPES UNLESS OTHERWISE INDICATED.
 - REGULATE PAVER MACHINE SPEED TO OBTAIN SMOOTH, CONTINUOUS SURFACE FREE OF PULLS AND TEARS IN ASPHALT-PAVING MAT.
- PLACE PAVING IN CONSECUTIVE STRIPS NOT LESS THAN 10 FEET WIDE UNLESS INFILL EDGE STRIPS OF A LESSER WIDTH ARE REQUIRED.
 - AFTER FIRST STRIP HAS BEEN PLACED AND ROLLED, PLACE SUCCEEDING STRIPS AND EXTEND ROLLING TO OVERLAP PREVIOUS STRIPS. COMPLETE A SECTION OF ASPHALT BASE COURSE BEFORE PLACING ASPHALT SURFACE COURSE.
- PROMPTLY CORRECT SURFACE IRREGULARITIES IN PAVING COURSE BEHIND PAVER. USE SUITABLE HAND TOOLS TO REMOVE EXCESS MATERIAL FORMING HIGH SPOTS. FILL DEPRESSIONS WITH HOT-MIX ASPHALT TO PREVENT SEGREGATION OF MIX; USE SUITABLE HAND TOOLS TO SMOOTH SURFACE.

JOINTS

CONSTRUCT JOINTS TO ENSURE A CONTINUOUS BOND BETWEEN ADJOINING PAVING SECTIONS. CONSTRUCT JOINTS FREE OF DEPRESSIONS, WITH SAME TEXTURE AND SMOOTHNESS AS OTHER SECTIONS OF HOT-MIX ASPHALT COURSE.

- CLEAN CONTACT SURFACES AND APPLY TACK COAT TO JOINTS.
- OFFSET LONGITUDINAL JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 6 INCHES.
- OFFSET TRANSVERSE JOINTS, IN SUCCESSIVE COURSES, A MINIMUM OF 24 INCHES.
- CONSTRUCT TRANSVERSE JOINTS AT EACH POINT WHERE PAVER ENDS A DAY'S WORK AND RESUMES WORK AT A SUBSEQUENT TIME. CONSTRUCT THESE JOINTS PER ODOT STANDARDS.
- COMPACT JOINTS AS SOON AS HOT-MIX ASPHALT WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT.
- COMPACT ASPHALT AT JOINTS TO A DENSITY WITHIN 2 PERCENT OF SPECIFIED COURSE DENSITY.

COMPACTION

- GENERAL: BEGIN COMPACTION AS SOON AS PLACED HOT-MIX PAVING WILL BEAR ROLLER WEIGHT WITHOUT EXCESSIVE DISPLACEMENT. COMPACT HOT-MIX PAVING WITH HOT, HAND TAMPERS OR WITH VIBRATORY-PLATE COMPACTORS IN AREAS INACCESSIBLE TO ROLLERS.
 - COMPLETE COMPACTION WITHIN TEMPERATURE SPECIFICATIONS AS SET IN THE OHIO DEPARTMENT OF TRANSPORTATION CONSTRUCTION AND MATERIALS SPECIFICATIONS.
- BREAKDOWN ROLLING: COMPLETE BREAKDOWN OR INITIAL ROLLING IMMEDIATELY AFTER ROLLING JOINTS AND OUTSIDE EDGE. EXAMINE SURFACE IMMEDIATELY AFTER BREAKDOWN ROLLING FOR INDICATED CROWN, GRADE, AND SMOOTHNESS. CORRECT LAYDOWN AND ROLLING OPERATIONS TO COMPLY WITH REQUIREMENTS.
- INTERMEDIATE ROLLING: BEGIN INTERMEDIATE ROLLING IMMEDIATELY AFTER BREAKDOWN ROLLING WHILE HOT-MIX ASPHALT IS STILL HOT ENOUGH TO ACHIEVE SPECIFIED DENSITY. CONTINUE ROLLING UNTIL HOT-MIX ASPHALT COURSE HAS BEEN UNIFORMLY COMPACTED TO THE FOLLOWING DENSITY:
 - AVERAGE DENSITY: 96 PERCENT OF REFERENCE LABORATORY DENSITY ACCORDING TO ASTM D 6927, BUT NOT LESS THAN 94 PERCENT NOR GREATER THAN 100 PERCENT.
- FINISH ROLLING: FINISH ROLL PAVED SURFACES TO REMOVE ROLLER MARKS WHILE HOT-MIX ASPHALT IS STILL WARM.
- EDGE SHAPING: WHILE SURFACE IS BEING COMPACTED AND FINISHED, TRIM EDGES OF PAVEMENT TO PROPER ALIGNMENT.
 - BEVEL EDGES WHILE ASPHALT IS STILL HOT; COMPACT ALL EDGES THOROUGHLY AND WITHOUT COMPACTOR LINES USING A HAND OR MECHANICAL TAMP.

- REPAIRS: REMOVE PAVED AREAS THAT ARE DEFECTIVE OR CONTAMINATED WITH FOREIGN MATERIALS AND REPLACE WITH FRESH, HOT-MIX ASPHALT. COMPACT BY ROLLING TO SPECIFIED DENSITY AND SURFACE SMOOTHNESS.
- PROTECTION: AFTER FINAL ROLLING, DO NOT PERMIT VEHICULAR TRAFFIC ON PAVEMENT UNTIL IT HAS COOLED AND HARDENED.
- ERECT BARRICADES TO PROTECT PAVING FROM TRAFFIC UNTIL MIXTURE HAS COOLED ENOUGH NOT TO BECOME MARKED.

INSTALLATION TOLERANCES

PAVEMENT THICKNESS: COMPACT EACH COURSE TO PRODUCE THE THICKNESS INDICATED WITHIN THE FOLLOWING TOLERANCES:

- BASE COURSE: PLUS OR MINUS 1/2 INCH (TOTAL OF ALL COMBINED BASE COURSES).
- SURFACE COURSE: PLUS 1/4 INCH, NO MINUS.
- TOTAL THICKNESS: WHERE TOTAL THICKNESS OF ASPHALT MATERIAL IS 3" OR LESS, TOTAL PAVEMENT THICKNESS IS TO BE PLUS OR MINUS 1/4 INCH.

PAVEMENT SURFACE SMOOTHNESS: COMPACT EACH COURSE TO PRODUCE A SURFACE SMOOTHNESS WITHIN THE FOLLOWING TOLERANCES AS DETERMINED BY USING A 10-FOOT STRAIGHTEDGE APPLIED TRANSVERSELY OR LONGITUDINALLY TO PAVED AREAS:

- BASE COURSE: 1/4 INCH.
- SURFACE COURSE: 1/8 INCH.
- SPORT AREA: ON THE HOT MIX SURFACE OF THE SPORT PLAYING AREAS, GRADES SHALL BE SET AT LEAST FIFTEEN (15) FEET ON CENTER BOTH LONGITUDINALLY AND TRANSVERSELY FOR EACH LIFT OF HMAP THAT IS PLACED.
 - THE FINISH SURFACE SHALL BE TESTED WITH A 10 FOOT STRAIGHT EDGE PLACED ON THE SURFACE. IT SHALL HAVE NO DEVIATION IN EXCESS OF ONE-EIGHTH (1/8) INCH FROM THE NEAREST POINT OF CONTACT.
 - AFTER THE FINAL LIFT IS PLACED, WATER SHALL BE APPLIED TO THE HOT MIX SURFACE AND ALL "BIRD BATHS", LOW AREAS, DEPRESSIONS, HIGH SPOTS, SEAMS, ETC., SHALL BE ELIMINATED PRIOR TO THE PLACEMENT OF THE SPORT SURFACING MATERIAL AND/OR ITS APPURTENANCES.
 - THE SPORT SURFACING SUB-CONTRACTOR SHALL APPROVE THE SURFACE OF THE HOT MIX PRIOR TO FINAL ACCEPTANCE AND SUBSEQUENT SURFACING MATERIAL.
 - ALL COST OF ALL CORRECTIONS TO THE SPORT SURFACE SHALL BE THE RESPONSIBILITY OF THE ASPHALT INSTALLATION CONTRACTOR.
- PONDING / RETAINED SURFACE WATER: NOT ACCEPTABLE; CONSIDERED DEFECTIVE PAVEMENT.

FIELD QUALITY CONTROL

- TESTING AGENCY: OWNER WILL ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.
 - TESTING AGENCY WILL CONDUCT AND INTERPRET TESTS AND STATE IN EACH REPORT WHETHER TESTED WORK COMPLIES WITH OR DEVIATES FROM SPECIFIED REQUIREMENTS.
 - ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.
- THICKNESS: IN-PLACE COMPACTED THICKNESS OF HOT-MIX ASPHALT COURSES WILL BE DETERMINED ACCORDING TO ASTM D 3549.
- SURFACE SMOOTHNESS: FINISHED SURFACE OF EACH HOT-MIX ASPHALT COURSE WILL BE TESTED FOR COMPLIANCE WITH SMOOTHNESS TOLERANCES.
- IN-PLACE DENSITY: TESTING AGENCY WILL TAKE SAMPLES OF UNCOMPACTED PAVING MIXTURES AND COMPACTED PAVEMENT ACCORDING TO ASTM D 979.
 - REFERENCE MAXIMUM THEORETICAL DENSITY WILL BE DETERMINED BY AVERAGING RESULTS FROM FOUR SAMPLES OF HOT-MIX ASPHALT-PAVING MIXTURE DELIVERED DAILY TO SITE, PREPARED ACCORDING TO ASTM D 2041, AND COMPACTED ACCORDING TO JOB-MIX SPECIFICATIONS.
 - IN-PLACE DENSITY OF COMPACTED PAVEMENT WILL BE DETERMINED BY TESTING CORE SAMPLES ACCORDING TO ASTM D 1188 OR ASTM D 2726.
 - ONE CORE SAMPLE WILL BE TAKEN FOR EVERY 1000 SQ. YD. OR LESS OF INSTALLED PAVEMENT, WITH NO FEWER THAN 3 CORES TAKEN.
 - FIELD DENSITY OF IN-PLACE COMPACTED PAVEMENT MAY ALSO BE DETERMINED BY NUCLEAR METHOD ACCORDING TO ASTM D 2950 AND CORRELATED WITH ASTM D 1188 OR ASTM D 2726.
- REPLACE AND COMPACT HOT-MIX ASPHALT WHERE CORE TESTS WERE TAKEN.
- REMOVE AND REPLACE OR INSTALL ADDITIONAL HOT-MIX ASPHALT WHERE TEST RESULTS OR MEASUREMENTS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.

WASTE DISPOSAL

EXCEPT FOR MATERIAL INDICATED TO BE RECYCLED, REMOVE EXCAVATED MATERIALS FROM PROJECT SITE AND LEGALLY DISPOSE OF THEM IN AN EPA-APPROVED LANDFILL.

- DO NOT ALLOW MILLED MATERIALS TO ACCUMULATE ON-SITE.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



CIVIL ENGINEERING
SURVEYING
LANDSCAPE
ARCHITECTURE
www.kleingers.com
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SCALE: N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

APPROVED
2024-004

7
41

ITEM SPECIAL - 4', 6', AND 8' HEIGHT CHAIN LINK FENCE

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE CHAIN LINK FENCES AND BACKSTOP AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

SUBMITTALS

- PRODUCT DATA: INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR CHAIN-LINK FENCES.
 - FENCE POSTS, RAILS, AND FITTINGS.
 - CHAIN-LINK FABRIC, REINFORCEMENTS, AND ATTACHMENTS.
 - BASEBALL BACKSTOP.
- SHOP DRAWINGS: SHOW LOCATIONS OF FENCES, POSTS, RAILS, DETAILS OF EXTENDED POSTS, EXTENSION ARMS, OR OTHER OPERATION, HARDWARE, AND ACCESSORIES. INDICATE MATERIALS, DIMENSIONS, SIZES, WEIGHTS, AND FINISHES OF COMPONENTS. INCLUDE PLANS, SECTIONS, DETAILS OF POST ANCHORAGE, ATTACHMENT, BRACING, AND OTHER REQUIRED INSTALLATION AND OPERATIONAL CLEARANCES.

QUALITY ASSURANCE

- INSTALLER QUALIFICATIONS: AN EXPERIENCED INSTALLER WHO HAS COMPLETED CHAIN-LINK FENCES SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THOSE INDICATED FOR THIS PROJECT AND WHOSE WORK HAS RESULTED IN CONSTRUCTION WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.
- PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

CHAIN-LINK FENCE FABRIC

GENERAL: INSERT HEIGHT, LIMITED TO 12 FEET. PROVIDE FABRIC IN ONE-PIECE HEIGHTS MEASURED BETWEEN TOP AND BOTTOM OF OUTER EDGE OF SELVAGE KNUCKLE. COMPLY WITH ASTM A 392, CLFMI CLF 2445, AND REQUIREMENTS INDICATED BELOW:

- STEEL WIRE FABRIC:
 - POLYMER-COATED WIRE WITH A DIAMETER OF 0.148 INCH (9 GAUGE).
 - BACKSTOP: WIRE DIAMETER SHALL BE 0.192 INCH (6 GAUGE).
 - MESH SIZE: 2 INCHES.
 - POLYMER COATING: ASTM F 668, CLASS 2B OVER METALLIC-COATED STEEL WIRE.
 - COLOR: BLACK, COMPLYING WITH ASTM F 934.
- COAT SELVAGE ENDS OF FABRIC THAT IS METALLIC COATED BEFORE THE WEAVING PROCESS WITH MANUFACTURER'S STANDARD CLEAR PROTECTIVE COATING.
- SELVAGE: KNUCKLED AT BOTH SELVAGES.

INDUSTRIAL FENCE FRAMING

POSTS AND RAILS: COMPLY WITH ASTM F 1043 FOR FRAMING, ASTM F 1083 FOR GROUP IC ROUND PIPE, AND THE FOLLOWING:

- GROUP: IA, ROUND STEEL PIPE, SCHEDULE 40 IC, ROUND STEEL PIPE, YIELD STRENGTH 50,000 PSI.
- FENCE HEIGHT: AS INDICATED ON DRAWINGS.
- STRENGTH REQUIREMENT: HEAVY INDUSTRIAL ACCORDING TO ASTM F 1043.
- POST DIAMETER AND THICKNESS: ACCORDING TO ASTM F 1083.
- POST SIZE AND THICKNESS: ACCORDING TO ASTM F 1083.
 - TOP, BOTTOM, AND INTERMEDIATE RAILS: 1.625 INCHES.
- STEEL LINE POST:
 - HEIGHT UP TO AND INCLUDING 6 FEET: 1.900 INCHES.
 - HEIGHT OVER 6 FEET: 2.375 INCHES.
 - BACKSTOP: 4 INCHES.
- STEEL END, CORNER AND PULL POST:
 - HEIGHT UP TO AND INCLUDING 6 FEET: 2.375 INCHES
 - HEIGHT OVER 6 FEET: 2.875 INCHES
 - BACKSTOP: 4 INCHES MINIMUM.

COATING FOR STEEL FRAMING:

- METALLIC COATING:
 - TYPE I STEEL PIPE: TYPE A, CONSISTING OF NOT LESS THAN MINIMUM 2.0-OZ./SQ. FT. AVERAGE ZINC COATING PER ASTM A 123/A 123M OR 4.0-OZ./SQ. FT. ZINC COATING PER ASTM A 653/A 653M.
 - TYPE II STEEL PIPE: TYPE B, ZINC WITH ORGANIC OVERCOAT, CONSISTING OF A MINIMUM OF 0.9 OZ./SQ. FT. OF ZINC AFTER WELDING, A CHROMATE CONVERSION COATING, OF 30 PLUS OR MINIMUM 15 MICROGRAMS, AND A CLEAR, VERIFIABLE POLYMER FILM OF 0.5 PLUS 0.2 MILS. TYPE B INSIDE WITH A MINIMUM OF 0.9 OZ OF ZINC PER SQ.FT.
- POLYMER COATING OVER METALLIC COATING.

FITTINGS

- GENERAL: COMPLY WITH ASTM F 626.
- POST AND LINE CAPS: PROVIDE FOR EACH POST.
 - LINE POST CAPS WITH LOOP TO RECEIVE TOP RAIL.
- RAIL AND BRACE ENDS: ATTACH RAILS SECURELY TO EACH CORNER, PULL, AND END POST.
- RAIL FITTINGS: PROVIDE THE FOLLOWING:
 - TOP RAIL SLEEVES: PRESSED-STEEL OR ROUND-STEEL TUBING NOT LESS THAN 6 INCHES LONG.
 - RAIL CLAMPS: LINE AND CORNER BOULEVARD CLAMPS FOR CONNECTING INTERMEDIATE AND BOTTOM RAILS IN THE FENCE LINE-TO-LINE POSTS.
- TENSION AND BRACE BANDS: PRESSED STEEL.
- TENSION BARS: STEEL, LENGTH NOT LESS THAN 2 INCHES SHORTER THAN FULL HEIGHT OF CHAIN-LINK FABRIC, PROVIDE ONE BAR FOR EACH END POST, AND TWO FOR EACH CORNER AND PULL POST, UNLESS FABRIC IS INTEGRALLY WOVEN INTO POST.
- TIE WIRES, CLIPS, AND FASTENERS: ACCORDING TO ASTM F 626.
 - STANDARD ROUND WIRE TIES: FOR ATTACHING CHAIN-LINK FABRIC TO POSTS, RAILS, AND FRAMES, COMPLYING WITH THE FOLLOWING:
 - ALUMINUM: ASTM B 211; ALLOY 1350-H19; 0.148-INCH-DIAMETER, MILL-FINISHED WIRE.

- FINISH:
 - METALLIC COATING FOR PRESSED STEEL OR CAST IRON: NOT LESS THAN 1.2 OZ. /SQ. FT. ZINC.
 - COLOR: MATCH FENCE MATERIALS.

CAST-IN-PLACE CONCRETE

- MATERIALS: PORTLAND CEMENT COMPLYING WITH ASTM C 150, TYPE I AGGREGATES COMPLYING WITH ASTM C 33, AND POTABLE WATER.
 - CONCRETE MIXES: NORMAL-WEIGHT CONCRETE WITH NOT LESS THAN 3000-PSI COMPRESSIVE STRENGTH (28 DAYS), 3-INCH SLUMP, AND 1-INCH MAXIMUM SIZE AGGREGATE.

POLYMER FINISHES

- SUPPLEMENTAL COLOR COATING: IN ADDITION TO SPECIFIED METALLIC COATINGS FOR STEEL, PROVIDE FENCE COMPONENTS WITH POLYMER COATING.
- METALLIC-COATED STEEL FRAMING AND FITTINGS: COMPLY WITH ASTM F 626 AND ASTM F 1043 FOR POLYMER COATING APPLIED TO EXTERIOR SURFACES AND, EXCEPT INSIDE CAP SHAPES, TO EXPOSED INTERIOR SURFACES.
 - POLYMER COATING: NOT LESS THAN 10-MIL-THICK PVC FINISH.
- COLOR: MATCH CHAIN-LINK FABRIC, COMPLYING WITH ASTM F 934.

EXAMINATION

EXAMINE AREAS AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR SITE CLEARING, EARTHWORK, PAVEMENT WORK, AND OTHER CONDITIONS AFFECTING PERFORMANCE.

- DO NOT BEGIN INSTALLATION BEFORE FINAL GRADING IS COMPLETED, UNLESS OTHERWISE PERMITTED BY ENGINEER.
- PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

PREPARATION

- STAKE LOCATIONS OF FENCE LINES AND TERMINAL POSTS. DO NOT EXCEED INTERVALS OF 500 FEET OR LINE OF SIGHT BETWEEN STAKES. INDICATE LOCATIONS OF UTILITIES, LAWN SPRINKLER SYSTEM, UNDERGROUND STRUCTURES, BENCHMARKS, AND PROPERTY MONUMENTS.

INSTALLATION, GENERAL

- INSTALL CHAIN-LINK FENCING TO COMPLY WITH ASTM F 567 AND MORE STRINGENT REQUIREMENTS SPECIFIED.

CHAIN-LINK FENCE INSTALLATION

- POST EXCAVATION: DRILL OR HAND-EXCAVATE HOLES FOR POSTS TO DIAMETERS AND SPACING INDICATED, IN FIRM, UNDISTURBED SOIL.
 - IF NOT INDICATED ON DRAWINGS, EXCAVATE HOLES FOR EACH POST TO MINIMUM DIAMETER RECOMMENDED BY FENCE MANUFACTURER, BUT NOT LESS THAN FOUR TIMES THE LARGEST CROSS SECTION OF POST.
 - UNLESS OTHERWISE INDICATED, EXCAVATE HOLE DEPTHS APPROXIMATELY 3 INCHES LOWER THAN THE POST BOTTOM, WITH BOTTOM OF POSTS SET NOT LESS THAN 36 INCHES BELOW FINISH GRADE SURFACE.
- POST SETTING: CENTER AND ALIGN POSTS IN HOLES 3 INCHES ABOVE BOTTOM OF EXCAVATION, SPACE A MAXIMUM OF 10 FEET O.C., UNLESS OTHERWISE INDICATED.
 - VERIFY THAT POSTS ARE SET PLUMB, ALIGNED, AND AT CORRECT HEIGHT AND SPACING, AND HOLD IN POSITION DURING SETTING WITH CONCRETE.
 - CONCRETE FILL: PLACE CONCRETE AROUND POSTS TO DIMENSIONS INDICATED AND VIBRATE OR TAMP FOR CONSOLIDATION. PROTECT ABOVEGROUND PORTION OF POSTS FROM CONCRETE SPLATTER.
 - FLUSH CONCRETE: CONCRETE TO BE FLUSH WITH ADJACENT GRADE; SHAPE AND SMOOTH TO SHED WATER.
- TERMINAL POSTS: LOCATE TERMINAL END AND CORNER POSTS PER ASTM F 567 AND TERMINAL PULL POSTS AT CHANGES IN HORIZONTAL OR VERTICAL ALIGNMENT OF 15 DEGREES OR MORE.
- LINE POSTS: SPACE LINE POSTS UNIFORMLY AT 10 FEET O.C., MAXIMUM.
- POST BRACING AND INTERMEDIATE RAILS: INSTALL ACCORDING TO ASTM F 567, MAINTAINING PLUMB POSITION AND ALIGNMENT OF FENCING. INSTALL BRACES AT END POSTS AND AT BOTH SIDES OF CORNER AND PULL POSTS.
 - LOCATE HORIZONTAL BRACES AT MID-HEIGHT OF FABRIC 6 FEET OR HIGHER, ON FENCES WITH TOP RAIL, AND AT 2/3 FABRIC HEIGHT ON FENCES WITHOUT TOP RAIL. INSTALL SO POSTS ARE PLUMB WHEN DIAGONAL ROD IS UNDER PROPER TENSION.
- TOP RAIL: INSTALL ACCORDING TO ASTM F 567, MAINTAINING PLUMB POSITION AND ALIGNMENT OF FENCING. RUN RAIL CONTINUOUSLY THROUGH LINE POST CAPS, BENDING TO RADIUS FOR CURVED RUNS AND TERMINATING INTO RAIL END ATTACHED TO POSTS OR POST CAPS FABRICATED TO RECEIVE RAIL AT TERMINAL POSTS. PROVIDE EXPANSION COUPLINGS AS RECOMMENDED IN WRITING BY FENCING MANUFACTURER.
- BOTTOM RAILS: INSTALL, SPANNING BETWEEN POSTS.
- CHAIN-LINK FABRIC: APPLY FABRIC TO OUTSIDE OF ENCLOSING FRAMEWORK. LEAVE 2 INCHES BETWEEN FINISH GRADE OR SURFACE AND BOTTOM SELVAGE, UNLESS OTHERWISE INDICATED. PULL FABRIC TAUT AND TIE TO POSTS, RAILS. ANCHOR TO FRAMEWORK SO FABRIC REMAINS UNDER TENSION AFTER PULLING FORCE IS RELEASED.
- TENSION OR STRETCHER BARS: THREAD THROUGH FABRIC AND SECURE TO END, CORNER, AND PULL POSTS WITH TENSION BANDS SPACED NOT MORE THAN 15 INCHES O.C.
- TIE WIRES: USE WIRE OF PROPER LENGTH TO FIRMLY SECURE FABRIC TO LINE POSTS AND RAILS. ATTACH WIRE AT 1 END TO CHAIN-LINK FABRIC, WRAP WIRE AROUND POST A MINIMUM OF 180 DEGREES, AND ATTACH OTHER END TO CHAIN-LINK FABRIC PER ASTM F 626. BEND ENDS OF WIRE TO MINIMIZE HAZARD TO INDIVIDUALS AND CLOTHING.
 - MAXIMUM SPACING: TIE FABRIC TO LINE POSTS AT 12 INCHES O.C. AND TO BRACES AT 24 INCHES O.C.
- FASTENERS: INSTALL NUTS FOR TENSION BANDS AND CARRIAGE BOLTS ON THE SIDE OF THE FENCE OPPOSITE THE FABRIC SIDE. PEEN ENDS OF BOLTS OR SCORE THREADS TO PREVENT REMOVAL OF NUTS

ITEM SPECIAL - SITE FURNISHINGS

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE SITE FURNISHINGS AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

- BENCHES.
- TABLES.
- BIKE RACKS.
- GRILLS.

SUBMITTALS

- PRODUCT DATA: FOR EACH TYPE OF PRODUCT.
- MATERIAL CERTIFICATES: FOR SITE FURNISHINGS.
- MAINTENANCE DATA: FOR SITE FURNISHINGS TO INCLUDE IN MAINTENANCE MANUALS.
- FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.
 - ANCHORS: TWO UNITS FOR EACH TYPE INDICATED.

BENCHES

- MANUFACTURER: DUMOR, 138 INDUSTRIAL CIRCLE, MIFFLINTOWN, PA 17059. PHONE: (800) 598-4018. E-MAIL: SALES@DUMOR.COM.
- MODEL: BENCH 93.
- DIMENSIONS: 6' LENGTH.
- OPTIONS: WITH ARMRESTS.
- INSTALLATION: SURFACE MOUNTED.
- COLOR: BLACK.
- OWNER FURNISHED, CONTRACTOR INSTALLED.**

TABLES

- MANUFACTURER: LANDSCAPE FORMS, INC., 7800 E. MICHIGAN AVE, KALAMAZOO, MICHIGAN 49048. PHONE: (800) 521-2546. FAX: (269) 381-3455. E-MAIL: SPECIFY@LANDSCAPEFORMS.COM.
- MODEL: "CHARLIE" PICNIC TABLE.
- OPTION: WITHOUT UMBRELLA HOLE.
- INSTALLATION: SURFACE MOUNTED.
- COLOR: TITANIUM.

BIKE RACKS

- MANUFACTURER: LANDSCAPE FORMS, INC., 7800 E. MICHIGAN AVE, KALAMAZOO, MICHIGAN 49048. PHONE: (800) 521-2546. FAX: (269) 381-3455. E-MAIL: SPECIFY@LANDSCAPEFORMS.COM.
- MODEL: "RIDE" BIKE RACK.
- INSTALLATION: EMBEDDED.
- COLOR: TITANIUM.

GRILL

- MANUFACTURER: RJ THOMAS MFG. CO., INC., PO BOX 946, CHEROKEE, IA 51012-0946. PHONE: (800) 762-5002. FAX: (712) 225-5796. E-MAIL: PILOTROCK@RJTHOMAS.COM.
- MODEL: PILOT ROCK ASW-20-B2 ACCESSIBLE PARK GRILL.
- INSTALLATION: EMBEDDED.
- COLOR: BLACK.

MATERIALS

ALUMINUM: ALLOY AND TEMPER RECOMMENDED BY ALUMINUM PRODUCER AND FINISHER FOR TYPE OF USE AND FINISH INDICATED; FREE OF SURFACE BLEMISHES AND COMPLYING WITH THE FOLLOWING:

- ROLLED OR COLD-FINISHED BARS, RODS, AND WIRE: ASTM B 211.
- EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES: ASTM B 221.
- STRUCTURAL PIPE AND TUBE: ASTM B 429/B 429M.
- SHEET AND PLATE: ASTM B 209.
- CASTINGS: ASTM B 26/B 26M.

STEEL AND IRON: FREE OF SURFACE BLEMISHES AND COMPLYING WITH THE FOLLOWING:

- PLATES, SHAPES, AND BARS: ASTM A 36/A 36M.
- STEEL PIPE: STANDARD-WEIGHT STEEL PIPE COMPLYING WITH ASTM A 53/A 53M, OR ELECTRIC-RESISTANCE-WELDED PIPE COMPLYING WITH ASTM A 135/A 135M.
- TUBING: COLD-FORMED STEEL TUBING COMPLYING WITH ASTM A 500/A 500M.
- MECHANICAL TUBING: COLD-ROLLED, ELECTRIC-RESISTANCE-WELDED CARBON OR ALLOY STEEL TUBING COMPLYING WITH ASTM A 513, OR STEEL TUBING FABRICATED FROM STEEL COMPLYING WITH ASTM A 1011/A 1011M AND COMPLYING WITH DIMENSIONAL TOLERANCES IN ASTM A 500/A 500M; ZINC COATED INTERNALLY AND EXTERNALLY.
- SHEET: COMMERCIAL STEEL SHEET COMPLYING WITH ASTM A 1011/A 1011M.
- PERFORATED METAL: FROM STEEL SHEET NOT LESS THAN 0.090-INCH NOMINAL THICKNESS; MANUFACTURER'S STANDARD PERFORATION PATTERN.
- EXPANDED METAL: CARBON-STEEL SHEETS, DEBURRED AFTER EXPANSION, AND COMPLYING WITH ASTM F 1267.
- MALLEABLE-IRON CASTINGS: ASTM A 47/A 47M, GRADE AS RECOMMENDED BY FABRICATOR FOR TYPE OF USE INTENDED.
- GRAY-IRON CASTINGS: ASTM A 48/A 48M, CLASS 200.

STAINLESS STEEL: FREE OF SURFACE BLEMISHES AND COMPLYING WITH THE FOLLOWING:

- SHEET, STRIP, PLATE, AND FLAT BARS: ASTM A 666.
- PIPE: SCHEDULE 40 STEEL PIPE COMPLYING WITH ASTM A 312/A 312M.
- TUBING: ASTM A 554.

ANCHORS, FASTENERS, FITTINGS, AND HARDWARE: SHALL BE STAINLESS STEEL MATERIAL; COMMERCIAL QUALITY, TAMPERPROOF, VANDAL AND THEFT RESISTANT.

FABRICATION

- METAL COMPONENTS: FORM TO REQUIRED SHAPES AND SIZES WITH TRUE, CONSISTENT CURVES, LINES, AND ANGLES. SEPARATE METALS FROM DISSIMILAR MATERIALS TO PREVENT ELECTROLYTIC ACTION.
- WELDED CONNECTIONS: WELD CONNECTIONS CONTINUOUSLY. WELD SOLID MEMBERS WITH FULL-LENGTH, FULL-PENETRATION WELDS AND HOLLOW MEMBERS WITH FULL-CIRCUMFERENCE WELDS. AT EXPOSED CONNECTIONS, FINISH SURFACES SMOOTH AND BLENDED SO NO ROUGHNESS OR UNEVENNESS SHOWS AFTER FINISHING AND WELDED SURFACE MATCHES CONTOURS OF ADJOINING SURFACES.
- PIPES AND TUBES: FORM SIMPLE AND COMPOUND CURVES BY BENDING MEMBERS IN JIGS TO PRODUCE UNIFORM CURVATURE FOR EACH REPETITIVE CONFIGURATION REQUIRED; MAINTAIN CYLINDRICAL CROSS SECTION OF MEMBER THROUGHOUT ENTIRE BEND WITHOUT BUCKLING, TWISTING, CRACKING, OR OTHERWISE DEFORMING EXPOSED SURFACES OF HANDRAIL AND RAILING COMPONENTS.
- EXPOSED SURFACES: POLISHED, SANDED, OR OTHERWISE FINISHED; ALL SURFACES SMOOTH, FREE OF BURRS, BARBS, SPLINTERS, AND SHARPNESS; ALL EDGES AND ENDS ROLLED, ROUNDED, OR CAPPED.
- FACTORY ASSEMBLY: ASSEMBLE COMPONENTS IN THE FACTORY TO GREATEST EXTENT POSSIBLE TO MINIMIZE FIELD ASSEMBLY. CLEARLY MARK UNITS FOR ASSEMBLY IN THE FIELD.

GENERAL FINISH REQUIREMENTS

- APPEARANCE OF FINISHED WORK: NOTICEABLE VARIATIONS IN SAME PIECE ARE NOT ACCEPTABLE. VARIATIONS IN APPEARANCE OF ADJOINING COMPONENTS ARE ACCEPTABLE IF THEY ARE WITHIN THE RANGE OF APPROVED SAMPLES AND ARE ASSEMBLED OR INSTALLED TO MINIMIZE CONTRAST.

ALUMINUM FINISHES

- BAKED-ENAMEL, POWDER-COAT FINISH: MANUFACTURER'S STANDARD, BAKED, POLYESTER, POWDER-COAT FINISH COMPLYING WITH FINISH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SURFACE PREPARATION, INCLUDING PRETREATMENT, APPLICATION, BAKING, AND MINIMUM DRY FILM THICKNESS.

STEEL AND GALVANIZED-STEEL FINISHES

- BAKED-ENAMEL, POWDER-COAT FINISH: MANUFACTURER'S STANDARD, BAKED, POLYESTER, POWDER-COAT FINISH COMPLYING WITH FINISH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SURFACE PREPARATION, INCLUDING PRETREATMENT, APPLICATION, BAKING, AND MINIMUM DRY FILM THICKNESS.
- PVC FINISH: MANUFACTURER'S STANDARD, UV-LIGHT STABILIZED, MOLD-RESISTANT, SLIP-RESISTANT, MATTE-TEXTURED, DIPPED OR SPRAYED-ON, PVC-PLASTISOL FINISH, WITH FLAME RETARDANT ADDED; COMPLYING WITH COATING MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PRETREATMENT, APPLICATION, AND MINIMUM DRY FILM THICKNESS.

IRON FINISHES

- BAKED-ENAMEL, POWDER-COAT FINISH: MANUFACTURER'S STANDARD, BAKED, POLYESTER, POWDER-COAT FINISH COMPLYING WITH FINISH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR SURFACE PREPARATION, INCLUDING PRETREATMENT, APPLICATION, BAKING, AND MINIMUM DRY FILM THICKNESS.

STAINLESS-STEEL FINISHES

- SURFACE PREPARATION: REMOVE TOOL AND DIE MARKS AND STRETCH LINES, OR BLEND INTO FINISH.
- POLISHED FINISHES: GRIND AND POLISH SURFACES TO PRODUCE UNIFORM FINISH, FREE OF CROSS SCRATCHES.
 - MANUFACTURER'S STANDARD FINISH.

EXAMINATION

- EXAMINE AREAS AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR CORRECT AND LEVEL FINISHED GRADE, MOUNTING SURFACES, INSTALLATION TOLERANCES, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
- PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

INSTALLATION, GENERAL

- COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED. COMPLETE FIELD ASSEMBLY OF SITE FURNISHINGS WHERE REQUIRED.
- UNLESS OTHERWISE INDICATED, INSTALL SITE FURNISHINGS AFTER LANDSCAPING AND PAVING HAVE BEEN COMPLETED.
- INSTALL SITE FURNISHINGS LEVEL, PLUMB, TRUE, AND SECURELY ANCHORED AT LOCATIONS INDICATED ON DRAWINGS.

ADJUSTING

- FINISH DAMAGE: REPAIR MINOR DAMAGES TO FINISH IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND AS APPROVED BY ENGINEER.
- COMPONENT DAMAGE: REMOVE AND REPLACE DAMAGED COMPONENTS THAT CANNOT BE SUCCESSFULLY REPAIRED AS DETERMINED BY THE ENGINEER.

CLEANING

- CLEAN FURNISHINGS PROMPTLY AFTER INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- DO NOT USE HARSH CLEANING MATERIALS OR METHODS THAT COULD DAMAGE FINISH.

PROTECTION

- PROTECT INSTALLED FURNISHINGS TO ENSURE THAT, EXCEPT FOR NORMAL WEATHERING, FURNISHINGS WILL BE WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



CIVIL ENGINEERING
SURVEYING
LANDSCAPE
ARCHITECTURE
www.kleingers.com
330 Worthington Rd
Suite H
Westerville, OH 43082
614.882.4211

SCALE:

N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

APPROVED

2024-004

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ITEM 12119 - SPORT COURT ACRYLIC SURFACE TREATMENT

GENERAL

THE CONTRACTOR SHALL APPLY TEXTURED ACRYLIC SURFACING FOR ASPHALT BASKETBALL COURTS AS IDENTIFIED HERE.

SUBMITTALS

THE CONTRACTOR SHALL PROVIDE THE FOLLOWING TO THE ENGINEER FOR REVIEW AND APPROVAL PRIOR COMMENCING THIS WORK:

1. MANUFACTURERS SPECIFICATIONS FOR COMPONENTS, COLOR CHART, AND INSTALLATION INSTRUCTIONS;
2. AUTHORIZED APPLICATOR CERTIFICATE FROM THE SURFACE SYSTEM MANUFACTURER;
3. ITF CLASSIFICATION CERTIFICATE FOR THE SYSTEM TO BE INSTALLED;
4. REFERENCE LIST FROM THE INSTALLER OF AT LEAST 3 PROJECTS OF SIMILAR SCOPE COMPLETED IN EACH OF THE PAST 3 YEARS;
5. CURRENT MATERIAL SAFETY DATA SHEETS (MSDS).

QUALITY ASSURANCE

1. SURFACING SHALL CONFORM TO THE GUIDELINES OF THE ASBA FOR PLANARITY.
2. ALL SURFACE COATING PRODUCTS SHALL BE SUPPLIED FROM A SINGLE MANUFACTURER.
3. THE CONTRACTOR SHALL RECORD THE BATCH NUMBER OF EACH PRODUCT USED ON THE SITE AND MAINTAIN IT THROUGH THE WARRANTY PERIOD.
4. THE CONTRACTOR SHALL PROVIDE TO THE ENGINEER AN ESTIMATE OF THE VOLUME OF EACH PRODUCT TO BE USED ON THE SITE.
5. THE INSTALLER SHALL BE AN AUTHORIZED APPLICATOR OF THE SPECIFIED SYSTEM.
6. THE MANUFACTURER'S REPRESENTATIVE SHALL BE AVAILABLE TO HELP RESOLVE MATERIAL QUESTIONS.

MATERIAL HANDLING AND STORAGE

1. STORE MATERIALS IN ACCORDANCE WITH MANUFACTURER SPECIFICATION AND MSDS.
2. DELIVER PRODUCT TO THE SITE IN ORIGINAL UNOPENED CONTAINERS WITH PROPER LABELS ATTACHED.
3. ALL SURFACING MATERIAL SHALL BE NON-FLAMMABLE.

GUARANTEE

THE CONTRACTOR SHALL PROVIDE A GUARANTEE AGAINST DEFECTS IN THE MATERIALS AND WORKMANSHIP FOR A PERIOD OF ONE YEAR FROM THE DATE OF SUBSTANTIAL COMPLETION.

INSTALLER QUALIFICATIONS

1. INSTALLER SHALL BE REGULARLY ENGAGED IN CONSTRUCTION AND SURFACING OF ACRYLIC TENNIS COURTS, PLAY COURTS OR SIMILAR SURFACES.
2. INSTALLER SHALL BE AN AUTHORIZED APPLICATOR OF THE SPECIFIED SURFACE SYSTEM.
3. INSTALLER SHALL BE A BUILDER MEMBER OF THE ASBA.

MANUFACTURER QUALIFICATIONS

1. SYSTEM MANUFACTURER SHALL HAVE BEEN INVOLVED IN SURFACE MANUFACTURING FOR THE TENNIS INDUSTRY FOR A MINIMUM OF 10 YEARS.
2. SYSTEM MANUFACTURER SHALL BE A MEMBER OF THE ASBA.

PRODUCTS

SYSTEM MANUFACTURERS

1. ALLOWABLE MANUFACTURERS/PRODUCTS:
 - a. SPORTMASTER, PO BOX 2277, SANDUSKY OH, COLOR PLUS SYSTEMS;
 - b. CALIFORNIA SPORTS SYSTEMS, 150 DASCOMB RD, ANDOVER MA, PAVEPLEX SYSTEM OR DECCOLOR;
 - c. HAR-TRU, 2200 OLD IVY RD, SUITE 100, CHARLOTTESVILLE VA, HAR-TRU SPORTS COATINGS.
2. THE CONTRACTOR SHALL USE ONLY ONE SYSTEM THROUGHOUT THE ENTIRE PROJECT. INDIVIDUAL PRODUCTS FROM DIFFERENT PRODUCT SYSTEMS SHALL NOT BE INTERMIXED.
3. THE CONTRACTOR SHALL OBTAIN PAVEMENT MARKING PAINTS FROM A SINGLE SOURCE FROM A SINGLE MANUFACTURER.
4. COLORS:
 - a. FIELD: DARK GREEN
 - b. COURT: LIGHT GREEN

MATERIALS: MATERIALS TO BE USED ON THIS PROJECT INCLUDE:

1. PATCHING MIX FOR USE IN PATCHING CRACKS, HOLES AND DEPRESSIONS AND OTHER SURFACE IMPERFECTIONS.
2. ACRYLIC FILLER RESURFACER COURSE FOR USE AS A FILLER FOR NEW OR EXISTING ASPHALT SURFACES. THE 100% ACRYLIC FILLER SHALL BE BLENDED WITH APPROVED SILICA SAND AT THE JOB SITE. SILICA SAND AMOUNTS SHALL BE SET FOR MEDIUM PLAY CONDITIONS.
3. ACRYLIC COLOR PLAYING SURFACE FOR USE AS THE FINISH COAT AND TEXTURE. SILICA SAND AMOUNTS SHALL BE SET FOR MEDIUM PLAY CONDITIONS.
4. LINE PAINT FOR USE AS THE LINE MARKING ON THE COURT SURFACE.
5. WATER FOR USE IN DILUTION/MIXING SHALL BE CLEAN AND POTABLE.

MATERIAL SPECIFICATIONS

MATERIAL	PERCENT SOLIDS BY WEIGHT	WEIGHT
COURT PATCH BINDER - 100% ACRYLIC RESIN BLENDED WITH PORTLAND CEMENT AND SILICA SAND	46% MIN.	8.7 - 8.9 LBS/GAL
ACRYLIC RESURFACER - 100% ACRYLIC RESIN, NO VINYL COPOLYMERIZATION CONSTITUENT	46% MIN.	8.7 - 8.9 LBS/GAL
NON-TEXTURED PLAYING SURFACE - 100% ACRYLIC RESIN, NO VINYL COPOLYMERIZATION CONSTITUENT	48% MIN.	10.0 - 10.2 LBS/GAL
LINE PAINT - 100% ACRYLIC RESIN CONTAINING NO ALKYDS OR VINYL CONSTITUENTS AND TEXTURING SHALL BE ROUNDED SILICA SAND	38% MIN.	12.0 - 12.3 LBS/GAL

1. ALL SURFACING MATERIALS SHALL BE NON-FLAMMABLE AND HAVE A VOC CONTENT OF NOT LESS THAN 100 GRAMS/LITER AS MEASURED BY EPA METHOD 24.
2. LOCAL SANDS MUST HAVE BEEN WRITTEN APPROVAL OF THE SYSTEM MANUFACTURER PRIOR TO USE IN THE COLOR PLAYING SURFACE.

EXECUTION

WEATHER LIMITATIONS: DO NOT INSTALL/APPLY PRODUCTS UNDER THE FOLLOWING CONDITIONS:

1. WHEN RAINFALL IS IMMINENT;
2. HIGH HUMIDITY THAT WOULD AFFECT DRYING;
3. WHEN SURFACE AND AIR TEMPERATURES ARE BELOW 50 DEGREES F (SURFACE AND AIR TEMPERATURE MUST BE 50 DEGREES F MINIMUM AND RISING);
4. WHEN SURFACE TEMPERATURE EXCEEDS 104 DEGREES F.

PREPARATION FOR ACRYLIC COLOR SURFACE TREATMENT SYSTEM

1. IF EXISTING ASPHALT SURFACE IS NEW, ALLOW THE ASPHALT TO CURE FOR 30 DAYS BEFORE BEGINNING THE PROCESS OF COLOR COATING.
2. THE CONTRACTOR SHALL CLEAN SURFACES OF LOOSE DIRT, OIL, GREASE, LEAVES, AND OTHER DEBRIS IN STRICT ACCORDANCE WITH MANUFACTURER'S DIRECTIONS. PRESSURE WASHING WILL BE NECESSARY TO ADEQUATELY CLEAN AREAS TO BE COATED. AREAS WHERE SIGNS OF CURRENT OR PREVIOUS ALGAE GROWTH HAS OCCURRED SHALL BE TREATED WITH BLEACH SOLUTION TO REMOVE THE ORGANISMS AND THEN BE FULLY RINSED.
3. CRACKS AND HOLES SHALL BE CLEANED AND A SUITABLE SOIL STERILANT, AS APPROVED BY THE ENGINEER, SHALL BE APPLIED TO KILL ALL VEGETATION 14 DAYS PRIOR TO USE OF THE COURT PATCH BINDER IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
4. DEPRESSIONS HOLDING ENOUGH WATER TO COVER A US NICKEL COIN SHALL BE FILLED WITH COURT PATCH BINDER PATCHING MIX. THE MIX SHALL BE 3 GALLONS OF COURT PATCH BINDER, 100 LBS. 60-80 SILICA SAND, AND 1-GALLON DRY PORTLAND CEMENT, TYPE 1. THIS WORK SHALL BE PERFORMED PRIOR TO THE SQUEEGEE APPLICATION OF ACRYLIC RESURFACER. THE CONTRACTOR SHALL FLOOD THE COURTS AND ALLOW THEM TO DRAIN. MARK ALL AREAS HOLDING ENOUGH WATER TO COVER A NICKEL. AFTER THE AREAS DRY, PRIME WITH TACK COAT MIXTURE OF 2 PARTS WATER TO 1-PART COURT PATCH BINDER. ALLOW THE TACK COAT TO DRY COMPLETELY. SPREAD COURT PATCH BINDER MIX TRUE TO GRADE USING A STRAIGHT EDGE (DO NOT USE A SQUEEGEE) FOR STRIKE OFF. STEEL TROWEL OR WOOD FLOAT THE PATCH SO THAT THE TEXTURE MATCHES THE SURROUNDING AREA. NEVER ADD WATER TO THE MIX. LIGHT MISTING ON SURFACE AND EDGES TO FEATHER IN IS ALLOWED AS NEEDED TO MAINTAIN WORKABILITY. ALLOW TO DRY THOROUGHLY AND THIS WORK SHALL BE INSPECTED AND APPROVED BY THE ENGINEER PRIOR TO COMPLETING ADDITIONAL WORK.
5. FILLER COURSE (ACRYLIC RESURFACER) SHALL BE APPLIED TO THE CLEAN UNDERLYING SURFACE TO OBTAIN A QUANTITY OF NOT LESS THAN .06 GAL/SY COAT BASED ON THE MATERIAL PRIOR TO ANY DILUTION. ACRYLIC RESURFACER MAY BE USED TO PRECOAT DEPRESSION AND CRACK/HOLE REPAIRS TO ACHIEVE BETTER PLANARITY PRIOR TO FILLER COURSE APPLICATION.

OVER A PROPERLY REPAIRED SURFACE OF ASPHALT ON EXISTING COURTS, APPLY ONE COAT OF ACRYLIC RESURFACER ACCORDING TO THE FOLLOWING MIX:

- a. ACRYLIC RESURFACER, 55 GALLONS;
- b. WATER, 45-50 GALLONS;
- c. SAND, 600-800 LBS / 60-80 MESH;
- d. LIQUID YIELD, 118-138 GALLONS.

ON NEW ASPHALT, TWO COATS OF ACRYLIC RESURFACER SHALL BE USED TO PROPERLY FILL ALL VOIDS IN THE ASPHALT SURFACE. USE CLEAN, DRY 60-80 MESH SAND AND CLEAN, POTABLE WATER TO MAKE MIXES. THE QUANTITY OF SAND AND WATER IN THE ABOVE MIX MAY BE ADJUSTED WITHIN ABOVE LIMITS TO COMPLEMENT THE ROUGHNESS AND TEMPERATURE OF THE SURFACE.

MIX THE INGREDIENTS THOROUGHLY USING ACCEPTED MIXING DEVICES AND USE A 70-DEGREE DUROMETER RUBBER BLADED SQUEEGEE TO APPLY EACH COAT OF ACRYLIC RESURFACER AS REQUIRED.

ALLOW THE APPLICATION OF ACRYLIC RESURFACER TO DRY THOROUGHLY. SCRAPE OFF ALL RIDGES AND ROUGH SPOTS PRIOR TO ANY SUBSEQUENT APPLICATION OF ACRYLIC RESURFACER OR SUBSEQUENT CUSHION COLOR SURFACE SYSTEM.

APPLICATION OF ACRYLIC COLOR PLAYING SURFACE

1. ALL AREAS TO BE COLOR COATED SHALL BE CLEAN, FREE FROM SAND, CLAY, GREASE, DUST, SALT, OR OTHER FOREIGN SURFACE MATERIAL.
2. BLEND NON-TEXTURED PLAYING SURFACE MATERIAL AND SILICA SAND WITH A MECHANICAL MIXER TO ACHIEVE A UNIFORM TEXTURED MIXTURE. THE MIX SHALL BE:
 - a. NON-TEXTURED PLAY SURFACE MATERIAL, 55 GALLONS;
 - b. SILICA SAND, 300-385 POUNDS;
 - c. WATER, 45-50 GALLONS;
3. APPLICATION SHALL BE MADE USING 50 DUROMETER RUBBER FACED SQUEEGEES. THE TEXTURED MIXTURE SHALL BE POURED ON TO THE COURT SURFACE AND SPREAD TO A UNIFORM THICKNESS IN A REGULAR PATTERN.
4. A TOTAL OF 3 APPLICATIONS OF TEXTURED PLAYING SURFACE SHALL BE MADE TO ACHIEVE A TOTAL APPLICATION RATE OF NOT LESS THAN .10 GAL/SY. NO APPLICATION SHALL BE MADE UNTIL THE PREVIOUS APPLICATION IS THOROUGHLY DRY.

LINE PAINTING

1. ALL LINES SHALL BE 2" WIDE. LINES SHALL BE CAREFULLY LAID OUT IN ACCORDANCE WITH ASBA. THE AREA TO BE MARKED SHALL BE TAPED AND TAPE EDGES SEALED WITH LINE PRIMER PRIOR TO LINE PAINT INSTALLATION TO ENSURE CRISP LINES ARE PRODUCED. THE LINE PAINT SHALL HAVE A TEXTURE SIMILAR TO THE SURROUNDING PLAY SURFACE. APPLICATION SHALL BE MADE BY BRUSH OR ROLLER AT THE RATE OF 150-200 SF/GAL.
2. LINES SHALL BE WHITE.
3. THE CONTRACTOR SHALL ALLOW THE ACRYLIC SURFACE TREATMENT TO CURE FOR 30 DAYS PRIOR TO PAINTING LINENWORK.

PROTECTION

1. THE CONTRACTOR SHALL ERECT TEMPORARY BARRIERS TO PROTECT COATINGS UNTIL THE APPLICATION IS DRY AND CURED AS DETERMINED BY THE ENGINEER.

CLEAN UP

1. REMOVE ALL CONTAINERS, SURPLUS MATERIAL AND DEBRIS. DISPOSE OF MATERIALS IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REGULATIONS. LEAVE THE SITE IN A CLEAN AND ORDERLY CONDITION.

PAYMENT

1. THE COST OF THIS WORK WILL BE PAID BY SQUARE YARD (SY).

ITEM SPECIAL - ATHLETIC EQUIPMENT

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE ATHLETIC EQUIPMENT AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION. THE INSTALLATION OF ALL NEW MATERIALS SHALL BE PERFORMED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTION, AND IN ACCORDANCE WITH ALL APPROVED SHOP DRAWINGS.

1. BASEBALL FOUL POLE.
2. SKINNED INFIELD.
3. BASEBALL BASES, HOME PLATE, AND PITCHING RUBBER.
4. TEAM BENCHES.
5. DUGOUT SYSTEM.
6. BASKETBALL SYSTEM.

DEFINITIONS

1. NFHS: THE NATIONAL FEDERATION OF STATE HIGH SCHOOL ASSOCIATIONS.
2. NCAA: THE NATIONAL COLLEGIATE ATHLETIC ASSOCIATION.

SUBMITTALS

1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.
 - a. IF APPLICABLE, INCLUDE ASSEMBLY, DISASSEMBLY, AND STORAGE INSTRUCTIONS FOR REMOVABLE EQUIPMENT.
2. COORDINATION DRAWINGS: LAYOUT PLANS, DRAWN TO SCALE, AND COORDINATING LOCATIONS OF ALL FIELD EQUIPMENT AND SPACE REQUIREMENTS.
3. SAMPLES FOR INITIAL SELECTION: FOR EACH TYPE OF EQUIPMENT OFFERING A COLOR SELECTION.
4. SAMPLES FOR VERIFICATION:
 - a. ACTUAL MATERIAL SAMPLE OF MATERIAL IN COLOR(S) SELECTED. PROVIDE SAMPLE THAT IS APPROXIMATELY 8-INCHES SQUARE OR (FOR EXTRUSIONS AND LINEAR ITEMS) 12-INCHES LONG.
6. PRODUCT CERTIFICATES: FOR EACH TYPE OF EQUIPMENT, SIGNED BY PRODUCT MANUFACTURER.
7. QUALIFICATION DATA: FOR INSTALLER.
8. OPERATION AND MAINTENANCE DATA: FOR EQUIPMENT TO INCLUDE IN OPERATION AND MAINTENANCE MANUALS.
9. WARRANTY: SPECIAL WARRANTY SPECIFIED IN THIS SECTION.

QUALITY ASSURANCE

1. SOURCE LIMITATIONS: OBTAIN EACH TYPE OF EQUIPMENT THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.
2. CONFORM TO THE LATEST RULES AND REGULATIONS OF THE NFHS/NCAA.

PROJECT CONDITIONS

1. FIELD MEASUREMENTS: VERIFY POSITION AND ELEVATION OF EQUIPMENT. COORDINATE FULLY WITH FINISH GRADING ELEVATIONS AND FINISH PAVING ELEVATIONS.
2. INSTALL ONLY WHEN OTHER SITE WORK IS COMPLETED TO A POINT THAT ENSURES NO DISPLACEMENT OF INSTALLED ATHLETIC FIELD EQUIPMENT.
3. INSTALL EQUIPMENT ONLY WHEN WEATHER CONDITIONS AND SOIL CONDITIONS ARE IN A RANGE ACCEPTABLE TO THE EQUIPMENT MANUFACTURER.

WARRANTY

1. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF FIELD SPORT EQUIPMENT THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
 - a. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

MATERIALS

1. ALUMINUM: ALLOY AND TEMPER RECOMMENDED BY MANUFACTURER FOR TYPE OF USE AND FINISH INDICATED.
 - a. EXTRUDED BARS, PROFILES, AND TUBES: ASTM B 221.
 - b. CAST ALUMINUM: ASTM B 179.
 - c. FLAT SHEET: ASTM B 209.
2. STEEL: COMPLY WITH THE FOLLOWING:
 - a. STEEL PLATES, SHAPES, AND BARS: ASTM A 36.
 - b. STEEL TUBING: ASTM A 500 OR ASTM A 513, COLD FORMED.
 - c. STEEL SHEET: ASTM A 1011.
 - d. STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR: ASTM A 666.
 - e. STAINLESS STEEL BARS AND SHAPES: ASTM A 276
3. ANCHORS, FASTENERS, FITTINGS AND HARDWARE: MANUFACTURER'S STANDARD CORROSION-RESISTANT OR NONCORRODIBLE UNITS; CONCEALED.
4. GROUT: NONSHRINK, NONMETALLIC, PREMIXED, FACTORY-PACKAGED, NONSTAINING, NONCORROSIVE, NONGASEOUS GROUT COMPLYING WITH ASTM C 1107 WITH MINIMUM STRENGTH RECOMMENDED IN WRITING BY EQUIPMENT MANUFACTURER.

SPORTS EQUIPMENT

BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE THE PRODUCT INDICATED AS THE BASIS OF DESIGN OR THE MOST COMPARABLE PRODUCT BY ONE OF THE OTHER NAMED MANUFACTURERS. IF PRODUCT NUMBER GIVEN FOR THE "OTHER NAMED" MANUFACTURERS IS NOT THE CLOSEST POSSIBLE TO THE BASIS OF DESIGN, ADVISE ENGINEER AND SUBMIT THE PRODUCT THAT IS MOST CLOSE TO THE BASIS OF DESIGN.

BASEBALL FOUL POLE:

1. 20' ABOVE GROUND.
2. 4" DIAMETER ALUMINUM TUBE.
3. OPTIONS: NO WING.
4. COLOR: YELLOW
5. POWDER-COATED FINISH.
6. INSTALLATION: EMBEDDED.
7. PRODUCTS:
 - a. BASIS OF DESIGN: ALUMINUM ATHLETIC EQUIPMENT CO., MODEL SAFP-22.

SKINNED INFIELD (PRE-PACKAGED):

1. WASHINGTON BALL MIX MANUFACTURED BY MAR-CO CLAY USA INC.

BASEBALL BASES, HOME PLATE, AND PITCHING RUBBER

1. PROVIDE BASES, ANCHORS, AND PLUGS.
 - a. BASIS OF DESIGN: 15" JACK CORBETT HOLLYWOOD BASE (SET OF 3), #SHBBLPSET
 - b. 8" GROUND ANCHOR - 1 ¼" SQUARE, #SHBBP-44
 - c. MUSHROOM PLUG, #SHBBP-64
2. PROVIDE BURY-ALL HOME PLATE.
 - a. BASIS OF DESIGN: JACK CORBETT HOLLYWOOD BURY-ALL HOME PLATE, #SHSRHP.
3. PROVIDE PITCHING RUBBER.
 - a. BASIS OF DESIGN: JACK CORBETT HOLLYWOOD PITCHING RUBBER, 6" X 24", #SHLBMPR224.

TEAM BENCHES:

1. BASIS-OF-DESIGN: JAYPRO SPORTS, MODEL PB-5SM.
2. ALUMINUM BENCH (1 IN EACH DUGOUT).
3. DIMENSIONS: 21" LONG BY 18" HIGH SEAT BY 10" DEEP.
4. INSTALLATION: SURFACE MOUNTED.
5. NO BACKREST.

DUGOUT SYSTEM

1. BASIS-OF-DESIGN: CANTILEVER DUGOUT WITH 8" REAR OFFSET AND BLACK POWDER COATED STEEL SUPPORT BEAMS, MANUFACTURED BY SPORTSFIELD SPECIALTIES.
2. DIMENSIONS: 10' WIDE BY 32' LONG.

BASKETBALL SYSTEM

1. BASIS-OF-DESIGN: GRIZZLY ADJUSTABLE OUTDOOR BASKETBALL SYSTEM (ITEM #1291247)
2. POLE: 6" x 6" x 0.157" WALL STEEL TUBING. POWDER COAT BLACK AFTER FABRICATION.
3. UPPER SUPPORT ARMS: 1" x 2" x 0.157" WALL STEEL TUBING. POWDER COAT BLACK AFTER FABRICATION.
4. LOWER SUPPORT ARMS: 2" x 4" x 0.157" WALL STEEL TUBING. POWDER COAT BLACK AFTER FABRICATION.
5. ACRYLIC BACKBOARD: 72" W x 42" H x 0.375" THICK TRANSPARENT ACRYLIC WITH ALUMINUM FRAME AND POLYURETHANE PADDING.
6. RIM: 0.625" STEEL BREAKAWAY RIM WITH ADJUSTABLE SPRINGS. 5" x 5" MOUNTING PATTERN. NYLON NET INCLUDED.
7. ADJUSTABLE HEIGHT: 7.5' TO 10'.

EXAMINATION

1. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR POSITION, ELEVATION AND ALIGNMENT OF MOUNTING SUBSTRATES, INSTALLATION TOLERANCES, OPERATIONAL CLEARANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE.
1. VERIFY CRITICAL DIMENSIONS.
2. EXAMINE SUPPORTING STRUCTURE AND SUBGRADES, AND FOOTINGS.
3. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

INSTALLATION, GENERAL

1. GENERAL: COMPLY WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS AND COMPETITION RULES APPLICABLE TO EACH TYPE OF EQUIPMENT. COMPLETE EQUIPMENT FIELD ASSEMBLY, WHERE REQUIRED.
2. UNLESS OTHERWISE INDICATED, INSTALL EQUIPMENT AFTER INTERFACING FINAL GRADES AND PAVING HAVE BEEN COMPLETED.
3. PERMANENTLY PLACED EQUIPMENT AND COMPONENTS: RIGID, LEVEL, PLUMB, SQUARE, AND TRUE; ANCHORED SECURELY TO SUPPORTING STRUCTURE; POSITIONED AT LOCATIONS AND ELEVATIONS INDICATED ON SHOP DRAWINGS; IN PROPER RELATION TO ADJACENT CONSTRUCTION; AND ALIGNED WITH FILED SPORT LAYOUT.
4. INSERT SETTING; POSITION SLEEVE IN OVERSIZED, RECESSED VOIDS IN CONCRETE AND FOOTINGS. CLEAN VOIDS OF DEBRIS. FILL VOID AROUND SLEEVES WITH GROUT, MIXED AND PLACED TO COMPLY WITH GROUT MANUFACTURER'S WRITTEN INSTRUCTIONS.
5. ANCHORING TO IN-PLACE CONSTRUCTION: USE ANCHORS AND FASTENERS WHERE NECESSARY FOR SECURING BUILT-IN AND PERMANENTLY PLACED EQUIPMENT TO STRUCTURAL SUPPORT AND FOR PROPERLY TRANSFERRING LOAD TO IN-PLACE CONSTRUCTION.

INSTALLATION

1. SKINNED INFIELD: SEE DRAWINGS FOR ELEVATIONS. GRADE TO 1/4 INCH VARIATION IN 10 FEET FOR SLOPED, OR CURVED PROFILES.
1. THE SUBGRADE SHALL BE PREPARED AT A UNIFORM DEPTH OF 6 INCHES BELOW THE FINISHED GRADE.
2. THE SUBGRADE SHALL THEN BE ROLLED WITH A 3 TO 5 TON ROLLER, OR OTHER SUITABLE ROLLER, AND THE SURFACE LIGHTLY SCARIFIED TO INSURE BONDING WITH THE SAND CLAY MIXTURE.
3. PLACING A PRE-PACKAGED INFIELD MIX, SPREAD EVENLY TO A LOOSE DEPTH SO THAT THE COMPACTED DEPTH SHALL BE 6 INCHES THICK.

DUGOUT SYSTEM: INSTALL IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS AND AS LOCATED ON THE PLANS.

CLEANING

1. AFTER COMPLETING EQUIPMENT INSTALLATION, INSPECT COMPONENTS. REMOVE SPOTS, DIRT, AND DEBRIS AND TOUCH UP DAMAGED SHOP-APPLIED FINISHES ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. REPLACE EQUIPMENT AND FINISHES THAT CANNOT BE CLEANED AND REPAIRED, IN A MANNER APPROVED BY THE ENGINEER, BEFORE TIME OF SUBSTANTIAL COMPLETION.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



SCALE: N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

APPROVED
2024-004

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41

ITEM SPECIAL - PERVIOUS CONCRETE PAVEMENT

THIS SECTION INCLUDES ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE PERVIOUS CONCRETE PAVEMENT, INCLUDING SUBGRADE TESTING AND PREPARATION FOR A STORMWATER STORAGE LAYER FOR TEMPORARY DETENTION OR GROUNDWATER RECHARGE IN CONFORMANCE WITH THE PLANS, SPECIFICATIONS AND OTHER CONTRACT DOCUMENTS, FOR PATHS, SIDEWALKS AND OTHER PEDESTRIAN AREAS.

REFERENCES

1. AMERICAN CONCRETE INSTITUTE (ACI)
 - a. ACI 211.3R "GUIDE FOR SELECTING PROPORTIONS FOR NO-SLUMP CONCRETE"
 - b. ACI 305 "HOT WEATHER CONCRETING"
 - c. ACI 306 "COLD WEATHER CONCRETING"
 - d. ACI 522 "REPORT ON PERVIOUS CONCRETE"
 - e. ACI 522.1-08 "SPECIFICATION FOR PERVIOUS CONCRETE PAVEMENT"
 - f. ACI FLATWORK FINISHER CERTIFICATION PROGRAM
 - g. ACI FIELD TECHNICIAN CERTIFICATION PROGRAM
2. AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)
 - a. ASTM C 29 "TEST FOR BULK DENSITY (UNIT WEIGHT) AND VOIDS IN AGGREGATE"
 - b. ASTM C 33 "SPECIFICATION FOR CONCRETE AGGREGATES"
 - c. ASTM C 42 "TEST METHOD FOR OBTAINING AND TESTING DRILLED CORES AND SAWED BEAMS OF CONCRETE"
 - d. ASTM C 94 "SPECIFICATION FOR READY-MIXED CONCRETE"
 - e. ASTM C 117 "TEST METHOD FOR MATERIAL FINER THAN 75-MM (NO. 200) SIEVE IN MINERAL AGGREGATES BY WASHING"
 - f. ASTM C 140 "TEST METHODS FOR SAMPLING AND TESTING CONCRETE MASONRY UNITS AND RELATED UNITS"
 - g. ASTM C 150 "SPECIFICATION FOR PORTLAND CEMENT"
 - h. ASTM C 172 "PRACTICE FOR SAMPLING FRESHLY MIXED CONCRETE"
 - i. ASTM C 174 "TEST METHOD FOR MEASURING THICKNESS OF CONCRETE ELEMENTS USING DRILLED CONCRETE CORES"
 - j. ASTM C 260 "SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE"
 - k. ASTM C 494 "SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE"
 - l. ASTM C 595 "SPECIFICATION FOR BLENDED HYDRAULIC CEMENTS"
 - m. ASTM C 618 "SPECIFICATION FOR COAL FLY ASH AND RAW OR CALCINED NATURAL POZZOLAN FOR USE AS A MINERAL ADMIXTURE IN PORTLAND CEMENT CONCRETE"
 - n. ASTM C 979 "SPECIFICATION FOR PIGMENTS FOR INTEGRALLY COLORED CONCRETE"
 - o. ASTM C 989 "SPECIFICATION FOR GROUND GRANULATED BLAST-FURNACE SLAG FOR USE IN CONCRETE AND MORTARS"
 - p. ASTM C 1077 "PRACTICE FOR LABORATORIES TESTING CONCRETE AND CONCRETE AGGREGATES FOR USE IN CONSTRUCTION AND CRITERIA FOR LABORATORY EVALUATION."
 - q. ASTM C 1116 "SPECIFICATION FOR FIBER-REINFORCED CONCRETE"
 - r. ASTM C 1602 "SPECIFICATION FOR MIXING WATER USED IN THE PRODUCTION OF HYDRAULIC CEMENT CONCRETE"
 - s. ASTM C 1688 "TEST METHOD FOR DENSITY AND VOID CONTENT OF FRESHLY MIXED PERVIOUS CONCRETE"
 - t. ASTM C 1701 "TEST METHOD FOR INFILTRATION RATE OF IN PLACE PERVIOUS CONCRETE"
 - u. ASTM D 448 "CLASSIFICATION FOR SIZES OF AGGREGATE FOR ROAD AND BRIDGE CONSTRUCTION"
 - v. ASTM D 1557 "TEST METHODS FOR LABORATORY COMPACTION CHARACTERISTICS OF SOIL USING MODIFIED EFFORT (56,000 FT-LBF/FT³)"
 - w. ASTM D 1751 "SPECIFICATION FOR PREFORMED EXPANSION JOINT FILLER FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION (NONEXTRUDING AND RESILIENT BITUMINOUS TYPES)"
 - x. ASTM D 1752 "SPECIFICATION FOR PREFORMED SPONGE RUBBER CORK AND RECYCLED PVC EXPANSION JOINT FILLERS FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION"
 - y. ASTM D 2434 "TEST METHOD FOR PERMEABILITY OF GRANULAR SOILS (CONSTANT HEAD)"
 - z. ASTM D 3385 "TEST METHOD FOR INFILTRATION RATE OF SOILS IN FIELD USING DOUBLE-RING INFILTROMETER"
 - aa. ASTM D 5084 "TEST METHODS FOR MEASUREMENT OF HYDRAULIC CONDUCTIVITY OF SATURATED POROUS MATERIALS USING A FLEXIBLE WALL PERMEAMETER (FALLING HEAD, METHOD C)"
 - ab. ASTM D 5093 "TEST METHOD FOR FIELD MEASUREMENT OF INFILTRATION RATE USING A DOUBLE-RING INFILTROMETER WITH A SEALED-INNER RING"
 - ac. ASTM D 6391 "TEST METHOD FOR FIELD MEASUREMENT OF HYDRAULIC CONDUCTIVITY LIMITS OF POROUS MATERIALS USING TWO STAGES OF INFILTRATION FROM A BOREHOLE"
 - ad. ASTM D7357 "SPECIFICATION FOR CELLULOSE FIBERS FOR FIBER-REINFORCED CONCRETE"
 - ae. ASTM E 329 "SPECIFICATION FOR AGENCIES ENGAGED IN THE TESTING AND/OR INSPECTION OF MATERIALS USED IN CONSTRUCTION"
3. NATIONAL READY MIXED CONCRETE ASSOCIATION (NRMCA)
 - a. NRMCA PERVIOUS CONCRETE CONTRACTOR CERTIFICATION
4. OHIO AGGREGATE & INDUSTRIAL MINERALS ASSOCIATION (OAIMA)
 - a. "GOING GREEN WITH ROCKS" TECHNICAL GUIDE FOR VOID PERCENTAGES
5. STATE OF OHIO DEPARTMENT OF TRANSPORTATION (ODOT) CONSTRUCTION AND MATERIAL SPECIFICATIONS
 - a. ITEM 703.02 AGGREGATE FOR PORTLAND CEMENT CONCRETE

QUALITY ASSURANCE:

1. PRIOR TO AWARD, THE BIDDER/CONTRACTOR SHALL SUBMIT EVIDENCE OF TWO SUCCESSFUL PERVIOUS CONCRETE PAVEMENT PROJECTS, EACH GREATER THAN 1,000 FT², INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - a. PROJECT NAME AND ADDRESS, OWNER NAME AND CONTACT INFORMATION.
 - b. TEST RESULTS INCLUDING DENSITY (UNIT WEIGHT), VOID CONTENT AND THICKNESS.
2. THE BIDDER/CONTRACTOR SHALL EMPLOY NO LESS THAN ONE NRMCA CERTIFIED PERVIOUS CONCRETE CRAFTSMAN WHO MUST BE ON SITE, OVERSEEING EACH PLACEMENT CREW DURING ALL CONCRETE PLACEMENT, OR EMPLOY NO LESS THAN THREE NRMCA CERTIFIED PERVIOUS CONCRETE INSTALLERS, WHO SHALL BE ON SITE AS MEMBERS OF EACH PLACEMENT CREW DURING ALL CONCRETE PLACEMENT, OR EMPLOY NO LESS THAN FIVE NRMCA CERTIFIED PERVIOUS CONCRETE TECHNICIANS, WHO SHALL BE ON SITE WORKING AS MEMBERS OF EACH PLACEMENT CREW DURING ALL CONCRETE PLACEMENT UNLESS OTHERWISE SPECIFIED. THE MINIMUM NUMBER OF CERTIFIED INDIVIDUALS LISTED ABOVE MUST BE PRESENT ON EACH PERVIOUS CONCRETE PLACEMENT INCLUDING ANY TEST PANEL PLACEMENTS, AND A CERTIFIED INDIVIDUAL MUST BE IN CHARGE OF THE PLACEMENT CREW AND PROCEDURES.

3. IF THE PLACING CONTRACTOR AND CONCRETE PRODUCER HAVE INSUFFICIENT EXPERIENCE WITH PERVIOUS CONCRETE PAVEMENT (LESS THAN TWO SUCCESSFUL PROJECTS), THE PLACING CONTRACTOR SHALL RETAIN AN EXPERIENCED CONSULTANT TO MONITOR PRODUCTION, HANDLING, AND PLACEMENT OPERATIONS AT THE CONTRACTOR'S EXPENSE.
4. QUALIFICATIONS OF TESTING LABORATORIES: THE TESTING LABORATORY SHALL HAVE ITS LABORATORY EQUIPMENT AND PROCEDURES INSPECTED AT INTERVALS NOT TO EXCEED 2 YEARS BY A QUALIFIED NATIONAL AUTHORITY AS EVIDENCE OF ITS COMPETENCE TO PERFORM THE REQUIRED TESTS AND MATERIAL DESIGNS. ACCEPTABLE NATIONAL AUTHORITY WILL INCLUDE THE AASHTO MATERIALS REFERENCE LABORATORY (AMRL) AND/OR THE CEMENT AND CONCRETE REFERENCE LABORATORY (CCRL) AS APPROPRIATE. IN ADDITION, TESTING MACHINES AND EQUIPMENT MUST BE CALIBRATED ANNUALLY OR MORE FREQUENTLY BY IMPARTIAL MEANS USING DEVICES OF ACCURACY TRACEABLE TO THE NATIONAL BUREAU OF STANDARDS. FIELD TESTS OF PERVIOUS CONCRETE SHALL BE PERFORMED BY INDIVIDUALS CERTIFIED AS BOTH AN NRMCA CERTIFIED PERVIOUS CONCRETE TECHNICIAN OR EQUIVALENT AND AS AN ACI CONCRETE FIELD TESTING TECHNICIAN - GRADE I OR EQUIVALENT. IN FIELDS OTHER THAN THOSE COVERED BY THE REFERENCED ASTM STANDARDS, THE TESTING LABORATORY SHALL ACCEPT ONLY THOSE ASSIGNMENTS WHICH IT IS ABLE TO PERFORM COMPETENTLY BY USE OF ITS OWN PERSONNEL AND EQUIPMENT. ANY WORK TO BE SUBCONTRACTED MUST BE TO LABORATORIES MEETING THE SAME CRITERIA. THE TESTING LABORATORY SHALL HAVE DEMONSTRATED ITS COMPETENCE IN THE APPLICABLE FIELDS FOR A PERIOD OF NOT LESS THAN 3 YEARS. THE INSPECTION AND TESTING SERVICES OF THE TESTING LABORATORY SHALL BE UNDER THE DIRECTION OF A FULL-TIME EMPLOYEE REGISTERED AS A PROFESSIONAL ENGINEER IN THE STATE OF OHIO. HE SHALL HAVE A MINIMUM OF 5 YEARS OF PROFESSIONAL ENGINEERING EXPERIENCE IN INSPECTION AND TESTING OF CONCRETE CONSTRUCTION.
5. SPECIAL EQUIPMENT: PERVIOUS CONCRETE REQUIRES SPECIFIC EQUIPMENT FOR COMPACTION AND JOINTING. THE PERVIOUS CONCRETE PAVEMENT SHALL BE JOINTED AND COMPACTED USING THE METHODS LISTED, OR ALTERNATIVES AS DEMONSTRATED AND APPROVED BY THE ENGINEER. FOR EXAMPLE, LARGE INSTALLATIONS MAY WARRANT MECHANIZED PLACEMENT TECHNIQUES.
 - a. ROLLING COMPACTION SHALL BE ACHIEVED USING A STEEL PIPE ROLLER OR A MOTORIZED OR HYDRAULICALLY ACTUATED ROTATING TUBE SCREED THAT SPANS THE WIDTH OF THE SECTION PLACED AND EXERTS A VERTICAL PRESSURE OF 10 PSI TO 30 PSI ON THE CONCRETE.
 - b. PLATE COMPACTION (FOR SMALL AREAS) SHALL BE ACHIEVED USING A STANDARD SOIL PLATE COMPACTOR THAT HAS A BASE AREA OF AT LEAST TWO SQUARE FEET AND EXERTS A MINIMUM OF 10 PSI VERTICAL PRESSURE ON THE PAVEMENT SURFACE (THROUGH A TEMPORARY COVER OF 3/4 IN. PLYWOOD).

SUBMITTALS

1. CONCRETE MATERIALS:
 - a. PROPOSED PERVIOUS CONCRETE MIXTURE PROPORTIONS INCLUDING ALL MATERIAL WEIGHTS, VOLUMES, DESIGN DENSITY (UNIT WEIGHT), WATER-CEMENTITIOUS RATIO, AND DESIGN VOID CONTENT.
 - b. AGGREGATE TYPE, SOURCE, GRADING, DRY-RODDED UNIT WEIGHT AND VOID CONTENT.
 - c. CEMENT, SUPPLEMENTARY CEMENTITIOUS MATERIALS, SYNTHETIC (POLYPROPYLENE) OR CELLULOSE FIBERS AND CHEMICAL ADMIXTURE MANUFACTURER CERTIFICATIONS.
 - d. DENSITY (UNIT WEIGHT) AND VOID CONTENT OF PROPOSED FRESHLY MIXED PERVIOUS CONCRETE MIXTURE PER ASTM C 1688. (THE FRESH DENSITY AND VOID CONTENT CALCULATED FROM THIS PROCEDURE MAY DIFFER FROM IN-PLACE DENSITY AND VOID CONTENT AND IS ONLY USED TO CHECK MIXTURE PROPORTION CONSISTENCY).
2. AGGREGATE BASE MATERIALS: WASHED AGGREGATE TYPE, SOURCE, GRADING AND VOID CONTENT (PERCENT POROSITY).
3. QUALIFICATIONS: EVIDENCE OF QUALIFICATIONS LISTED UNDER QUALITY ASSURANCE SECTION.
4. PROJECT DETAILS: SPECIFIC PLANS INCLUDING A JOINTING PLAN, DETAILS, SCHEDULE, CONSTRUCTION PROCEDURES AND QUALITY CONTROL PLAN.
5. SUBCONTRACTORS: LIST ALL MATERIALS SUPPLIERS, SUBCONTRACTORS AND TESTING LABORATORIES TO BE USED ON THE PROJECT.
6. TEST PANELS: PRIOR TO CONSTRUCTION, TEST PANEL(S) SHALL BE PLACED WITH THE CREW MEETING THE REQUIREMENT OF NRMCA CERTIFIED PERSONNEL AND APPROVED BY THE ENGINEER. THE ENGINEER MAY WAIVE THIS REQUIREMENT BASED ON CONTRACTOR QUALIFICATIONS. AT CONTRACTOR'S OPTION, TEST PANELS MAY BE CONSTRUCTED ON APPROVED SECTIONS OF PROJECT AGGREGATE DETENTION (OR GROUNDWATER RECHARGE) LAYER.
 - a. TEST PANEL(S) SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS AND SPECIFICATIONS. REGARDLESS OF QUALIFICATION, THE CONTRACTOR IS TO PLACE TWO TEST PANELS. EACH APPROXIMATELY 225 FT² (20.9 M²) AT THE REQUIRED PROJECT THICKNESS, CONSOLIDATED, JOINTED AND CURED USING MATERIALS, EQUIPMENT, AND PERSONNEL PROPOSED FOR THE PROJECT, AND ON THE SAME AGGREGATE BASE PROPOSED, TO DEMONSTRATE TO THE ENGINEER'S SATISFACTION THAT IN-PLACE UNIT WEIGHTS CAN BE ACHIEVED AND A SATISFACTORY PAVEMENT CAN BE INSTALLED AT THE SITE LOCATION. IF STRENGTH IS USED IN THE PAVEMENT DESIGN, CORES FROM THE TEST PANELS MAY BE USED TO CONFIRM THAT CONSOLIDATION AND INFILTRATION, AS WELL AS STRENGTH, IS CONSISTENT WITH DESIGN OBJECTIVES FOR THE TOP AND BOTTOM OF THE SLAB.
 - b. TEST PANEL(S) COST AND REMOVAL, IF NECESSARY, SHALL BE INCLUDED AS A LINE ITEM IN THE CONTRACT PROPOSAL AND CONTRACT. TEST PANELS MAY BE PLACED AT ANY OF THE SPECIFIED PERVIOUS CONCRETE PAVEMENT LOCATIONS ON THE PROJECT OR AT ANOTHER TEST SITE.
 - c. QUALITY: TEST PANELS SHALL HAVE ACCEPTABLE SURFACE FINISH, JOINT DETAILS, THICKNESS, POROSITY AND CURING PROCEDURES AND SHALL COMPLY WITH THE TESTING AND ACCEPTANCE STANDARDS LISTED IN THE QUALITY CONTROL SECTION OF THIS SPECIFICATION. TEST DENSITY AND VOID CONTENT OF FRESH CONCRETE FOR THE TEST PANELS IN ACCORDANCE WITH ASTM C 1688. OBTAIN HARDENED CONCRETE CORES FROM THE TEST PANELS IN ACCORDANCE WITH ASTM C 42. TEST CORE THICKNESS IN ACCORDANCE WITH ASTM C 174, AND DENSITY (UNIT WEIGHT) AND VOID CONTENT IN ACCORDANCE WITH ASTM C 140, PARAGRAPH 9.3.
 - d. SATISFACTORY PERFORMANCE OF THE TEST PANELS SHALL BE DETERMINED BY:
 - 1) FRESH CONCRETE RESULTS
 - DENSITY (UNIT WEIGHT) PLUS OR MINUS 5 LB/FT³ (80 KG/M³) OF THE SUBMITTED FRESH DENSITY (UNIT WEIGHT).
 - VOID CONTENT PLUS OR MINUS 2 % OF THE SUBMITTED FRESH VOID CONTENT
 - 2) HARDENED CONCRETE RESULTS (AVERAGE OF MINIMUM 3 CORES)
 - COMPACTED THICKNESS NO LESS THAN 1/4 IN. (6.35 MM) LESS THAN SPECIFIED THICKNESS (T COMPACTED ≥ T SPECIFIED - 1/4 IN.); (T COMPACTED ≥ T SPECIFIED - 6.35 MM) B. HARDENED DENSITY (UNIT WEIGHT) PLUS OR MINUS 5 % OF THE DESIGN DENSITY (UNIT WEIGHT).
 - VOID CONTENT SHALL BE NOT BE LOWER THAN 2% BELOW THE DESIGN VOID CONTENT.
 - 3) VOID CONTENT SHALL CALCULATED AS FOLLOWS: % VOIDS = 1 - (DD/DI) * 100 WHERE: DD = OVEN DRIED DENSITY OF CORE DI = IMMERSED DENSITY OF CORE
- e. IF TEST PANELS ARE FOUND TO BE UNSATISFACTORY, THEY SHALL BE REMOVED AT THE CONTRACTOR'S EXPENSE AND DISPOSED OF IN AN APPROVED LANDFILL OR RECYCLING FACILITY. IF TEST PANELS ARE FOUND TO BE SATISFACTORY, THEY MAY BE LEFT IN-PLACE AND INCLUDED IN THE COMPLETED WORK, AT NO ADDITIONAL COST TO THE PROJECT.

PROJECT CONDITIONS

1. WEATHER LIMITATIONS
 - a. THE CONTRACTOR SHALL NOT PLACE PERVIOUS CONCRETE FOR PAVEMENT WHEN THE AMBIENT TEMPERATURE IS PREDICTED BY THE NATIONAL WEATHER SERVICE POINT FORECAST FOR THE JOBSITE TO BE 40 °F OR LOWER DURING THE SEVEN DAYS FOLLOWING PLACEMENT, UNLESS OTHERWISE PERMITTED IN WRITING BY THE ENGINEER.
 - b. THE CONTRACTOR SHALL NOT PLACE PERVIOUS CONCRETE FOR PAVEMENT WHEN THE AMBIENT TEMPERATURE IS PREDICTED BY THE NATIONAL WEATHER SERVICE POINT FORECAST FOR THE JOBSITE TO RISE ABOVE 90 °F DURING THE SEVEN DAYS FOLLOWING PLACEMENT, UNLESS OTHERWISE PERMITTED IN WRITING BY THE ENGINEER.
 - c. PERVIOUS CONCRETE PAVEMENT SHALL NOT BE PLACED ON FROZEN COARSE AGGREGATE OR SUBGRADE.
 - d. EVAPORATION CONTROL MEASURES SHALL BE APPLIED FROM THE TIME OF DISCHARGE UNTIL THE PAVEMENT IS COVERED WITH POLYETHYLENE SHEETING TO PREVENT MOISTURE LOSS DURING PLACEMENT OPERATIONS.

PRE-PAVING CONFERENCE A PRE-PAVING CONFERENCE WITH THE ENGINEER SHALL BE HELD WITHIN ONE WEEK PRIOR TO BEGINNING PLACING THE PERVIOUS CONCRETE. THE CONTRACTOR SHALL HAVE THE PERVIOUS CONCRETE SUPPLIER, THE FOREMAN AND THE ENTIRE CONCRETE CREW THAT WILL FORM AND PLACE THE CONCRETE IN ATTENDANCE AT THIS MEETING. A QUALIFIED REPRESENTATIVE FROM ORMA/OHIO CONCRETE SHALL ALSO BE IN ATTENDANCE FOR ASSISTANCE. AS A GUIDE FOR THE MEETING, THE DOCUMENT *CHECKLIST FOR THE CONCRETE PRE-CONSTRUCTION CONFERENCE* (AVAILABLE FROM THE NATIONAL READY MIXED CONCRETE ASSOCIATION OR THE AMERICAN SOCIETY OF CONCRETE CONTRACTORS) SHALL BE USED TO REVIEW ALL REQUIREMENTS OF THE CONTRACT DURING THE MEETING. MEETING EMPHASIS SHALL BE ON HOW PAVING WITH PERVIOUS CONCRETE DIFFERS FROM PAVING WITH CONVENTIONAL CONCRETE.

STORMWATER DETENTION LAYER OR GROUNDWATER RECHARGE BED

1. TESTING TO DETERMINE THE SUBGRADE SOIL INFILTRATION RATE SHALL BE CONDUCTED BY A QUALIFIED TESTING LABORATORY, BY EITHER THE FIELD OR LABORATORY METHODS LISTED BELOW:
 - a. FIELD METHODS - ASTM D 3385, ASTM D 5093 OR ASTM D 6391;
 - b. LABORATORY METHODS - ASTM D 5084 OR ASTM D 2434.
2. IF THE SUBGRADE SOIL HAS A MINIMUM INFILTRATION RATE OF 0.5 IN./HR. A FILTER FABRIC SHALL BE INSTALLED AND THE STORMWATER STORAGE USED FOR GROUNDWATER RECHARGE. AN IMPERVIOUS LINER SHALL BE USED AND A POSITIVE OUTLET PROVIDED TO DRAIN ALL WATER FROM THE STORAGE LAYER WHEN THE SOIL INFILTRATION IS BELOW 0.1 IN./HR. FOR SOIL INFILTRATION VALUES BETWEEN 0.1 IN./HR AND 0.5 IN./HR DETERMINATION FOR SYSTEM TYPE MAY REQUIRE FURTHER CONSIDERATION. (NOTE: LOCAL ORDINANCES MAY DICTATE STORAGE AND DISCHARGE REQUIREMENTS. FOR THIS GUIDE SPECIFICATION, IF AN IMPERVIOUS LINER IS USED, THE STORMWATER STORAGE LAYER IS REFERRED TO AS A DETENTION LAYER, ANTICIPATING THAT THE WATER WILL PASS FROM STORAGE VIA A PIPE, DAYLIGHTED AGGREGATE DRAIN OR OTHER FORM OF POSITIVE CONDUIT. IF A FILTER FABRIC IS USED, THE STORAGE LAYER WILL BE REFERRED TO AS A RECHARGE BED, ANTICIPATING THAT A SUBSTANTIAL AMOUNT OF THE STORED WATER WILL PASS THROUGH THE FABRIC INTO THE SUBGRADE.) NOTE: SIZING AND LOCATIONS OF ANY PIPES, ETC. IS TO BE DESIGNED BY OTHERS, AND IS NOT A PART OF THIS GUIDE.

COARSE AGGREGATE FOR STORMWATER DETENTION LAYER (OR GROUNDWATER RECHARGE BED) SHALL BE AN OPEN GRADED, CLEAN COARSE AGGREGATE, WITH A WASH LOSS OF NO MORE THAN 5%, PER ODOT ITEM 703.01, TABLE 703.01-1, OR APPROVED EQUAL. AN OPTIONAL CHOKER BASE COURSE OF AGGREGATE MEETING THE SAME REQUIREMENTS ABOVE MAY BE USED ALSO AS THE TOP LAYER TO FACILITATE CONSTRUCTION OPERATIONS.

1. ACTUAL SIZE(S) OF WASHED, OPEN GRADED, COARSE AGGREGATE FOR STORMWATER DETENTION LAYER (OR GROUNDWATER RECHARGE BED), SHALL BE AT CONTRACTOR'S OPTION FOR BEST AVAILABILITY, PERCENT VOID AND ECONOMICS. REFER TO THE OHIO AGGREGATES & INDUSTRIAL MINERAL ASSOCIATION (OAIMA) TABLE OF VOID PERCENTAGES OF COMMON OHIO COARSE AGGREGATES, AVAILABLE AT WWW.OAIMA.ORG. PLAN THICKNESS REQUIREMENTS FOR STORMWATER STORAGE IN THE SYSTEM, WHETHER DESIGNED FOR DETENTION OR RECHARGE, MAY BE APPROXIMATED USING THE *PERVIOUS CONCRETE HYDROLOGICAL ANALYSIS PROGRAM2*. THAT SOFTWARE ASSUMES A FLAT SUBGRADE; CALCULATIONS MAY REQUIRE ADJUSTMENTS FOR SUBGRADE SLOPE. EVEN FOR SOILS WITH INFILTRATION RATES IN EXCESS OF 1.5 IN./HR (38.1 MM/HR), MINIMUM TOTAL THICKNESS OF COARSE AGGREGATE FOR STORMWATER STORAGE SHALL BE 8 IN. (203 MM).

IMPERVIOUS LINER: SHALL BE 15 MIL STEGO WRAP OR PERMALON, PLY-X 150, OR APPROVED EQUAL (FOR STORMWATER DETENTION).

FILTER FABRIC: SHALL BE A NONWOVEN GEOTEXTILE, MARAFI 140N OR TYPAR FABRIC, STYLE 3341, OR APPROVED EQUAL (FOR GROUNDWATER RECHARGE).

UNDERDRAIN PIPING: SHALL BE PERFORATED PLASTIC PIPE, 4 INCH DIAMETER, LOCATED PER THE PLANS TYPICALLY AT THE BASE OF THE STORMWATER DETENTION LAYER (OR GROUNDWATER RECHARGE BED). PIPING FOR UNDERDRAIN WILL BE PAID FOR SEPARATELY, UNDER COLS ITEM 605 4" UNDERDRAIN.

OVERDRAIN PIPING: SHALL BE PERFORATED PLASTIC PIPE, 4-INCH DIAMETER, LOCATED PER THE PLANS TYPICALLY AT THE TOP OF THE STORMWATER DETENTION LAYER (OR GROUNDWATER RECHARGE BED).

ISOLATION (EXPANSION) JOINT MATERIAL: ISOLATION JOINT MATERIAL SHALL RUBBER IN ACCORDANCE WITH 12705 SUPPLEMENTAL SPECIFICATION.

CURING MATERIALS

1. POLYETHYLENE SHEETING - THE PRIMARY METHOD OF CURING PERVIOUS CONCRETE SHALL BE THE PLACEMENT OF A WATERPROOF COVERING, CONSISTING OF A MINIMUM OF 4 MIL THICK CLEAR POLYETHYLENE SHEETING.
2. OTHER MOISTURE LOSS CONTROL - FOR PREVENTION OF MOISTURE LOSS PRIOR TO THE PRIMARY METHOD OF CURING:
 - a. MONOMOLECULAR FILM (EVAPORATION RETARDANT), SIKAFILM BY SIKA CORPORATION, EUOCOBAR BY EUCLID CHEMICAL CO., CONFLM BY BASF (MASTER BUILDERS TECHNOLOGIES) OR CATEXOL CIMFILM BY AXIM CONCRETE TECHNOLOGIES, OR APPROVED EQUAL, APPLIED PER MANUFACTURER'S INSTRUCTIONS.
 - b. SOYBEAN OIL SEALER. NOTE: SOYBEAN OIL IS GAINING IN ACCEPTANCE AND USE IN CERTAIN REGIONS. IT REPORTEDLY REDUCES SURFACE COLOR MARKINGS FROM PLASTIC SHEETING, MAY ENHANCE STRENGTH AND DOES NOT REDUCE POROSITY.
 - c. FOGGING EQUIPMENT DESIGNED TO RAISE THE RELATIVE HUMIDITY OF THE AMBIENT AIR OVER THE SLAB AND REDUCE EVAPORATION TO INCLUDE FOG NOZZLES THAT ATOMIZE WATER USING AIR PRESSURE TO CREATE A FOG BLANKET OVER THE SLAB. NOTE: GARDEN HOSE NOZZLES ARE NOT SUFFICIENT TO CREATE FOG AND MAY WASH PASTE OFF THE AGGREGATE.

PERVIOUS CONCRETE PAVEMENT

CEMENT: PORTLAND CEMENT TYPE I, TYPE II OR V CONFORMING TO ASTM C 150 OR PORTLAND CEMENT TYPE IP OR IS CONFORMING TO ASTM C 595.

SUPPLEMENTARY CEMENTITIOUS MATERIALS:

1. FLY ASH CONFORMING TO ASTM C 618
2. GROUND GRANULATED BLAST-FURNACE SLAG CONFORMING TO ASTM C 989

ADMIXTURES:

1. AIR ENTRAINING ADMIXTURES WITH ASTM C 260.
2. CHEMICAL ADMIXTURES SHALL COMPLY WITH ASTM C 494.
 - a. MID-RANGE WATER REDUCING ADMIXTURES (WATER REDUCERS) TYPE A OR HIGH RANGE WATER REDUCING ADMIXTURES TYPE F OR G ARE PERMITTED DUE TO LOW WATER-CEMENTITIOUS RATIOS SPECIFIED FOR PERVIOUS CONCRETE.
 - b. EXTENDED SET CONTROL ADMIXTURES (HYDRATION STABILIZERS) MEETING REQUIREMENTS OF ASTM C 494 TYPE B RETARDING OR TYPE D WATER REDUCING/RETARDING ADMIXTURES ARE PERMITTED TO BE USED WHEN IT IS NECESSARY TO INCREASE CONCRETE PLACEMENT TIME TO 90 MINUTES OR TO IMPROVE FINISHING OPERATIONS. NOTE: THIS STABILIZER SUSPENDS CEMENT HYDRATION BY FORMING A PROTECTIVE BARRIER AROUND THE CEMENTITIOUS PARTICLES, WHICH DELAYS THE PARTICLES INITIAL SET. IF THIS MIX HEATS UP IN THE TRUCK A STANDARD RETARDER WILL NOT PREVENT PREMATURE HYDRATION WHERE THE STABILIZER WILL.
 - c. VISCOSITY MODIFYING ADMIXTURES (VMA'S) ARE PERMITTED TO FACILITATE DISCHARGE OF THE CONCRETE FROM THE TRUCK AND PLACEMENT IN THE FORMS.

FIBER REINFORCEMENT:

1. SYNTHETIC FIBER SHALL BE IN ACCORDANCE TO ASTM C 1116 TYPE III MADE OF POLYPROPYLENE.
2. CELLULOSE FIBERS SHALL BE IN ACCORDANCE TO ASTM C 1116 TYPE IV MADE OF NATURAL FIBERS CONFORMING TO ASTM D 7357.

AGGREGATES FOR PERVIOUS CONCRETE:

1. COARSE AGGREGATE SHALL MEET THE SIZE AND GRADING REQUIREMENTS AS DEFINED IN ASTM D 448 (OR STANDARD SIZES OF COARSE AGGREGATE, TABLE 4, AASHTO SPECIFICATIONS, PART I, 13TH ED., 1982 OR LATER) AND SHALL COMPLY WITH ASTM C 33 AND ODOT ITEM 703.02. USE NO.67, NO. 7, NO. 8, NO. 89 OR NO. 9 UNLESS AN ALTERNATE SIZE IS APPROVED FOR USE BASED ON MEETING THE PROJECT REQUIREMENTS. DATA FOR PROPOSED ALTERNATE MATERIAL SHALL BE SUBMITTED FOR APPROVAL. FINE AGGREGATE COMPLYING WITH ASTM C33, IF USED, SHALL NOT EXCEED 3 FT3 PER YD3.
2. LARGER AGGREGATE SIZES MAY INCREASE POROSITY BUT CAN DECREASE WORKABILITY. NO. 8 SIZE COARSE AGGREGATE IS THE COMMON SIZE USED IN PERVIOUS CONCRETE PAVEMENTS. WELL GRADED AGGREGATES SHALL BE AVOIDED AS THEY MAY REDUCE POROSITY, AND MAY NOT PROVIDE ADEQUATE VOID CONTENT.
3. NOTE: SUGGESTED MAXIMUM LIMIT FOR COARSE AGGREGATE OF 15% PASSING NO. 4 SIEVE.
 - a. FOR 5 TO 10% PASSING NO. 4 SIEVE, ADD 125 LB/YD³ FINE AGGREGATE.
 - b. FOR 0 TO 5% PASSING NO. 4 SIEVE, ADD 200 LB/YD³ FINE AGGREGATE.

WATER: WATER SHALL BE POTABLE AND COMPLY WITH ASTM C 1602.

MIXTURE PROPORTIONS: THE CONTRACTOR SHALL FURNISH A PROPOSED MIX DESIGN WITH ALL PROPORTIONS OF MATERIALS PRIOR TO COMMENCEMENT OF WORK. THE DATA SHALL INCLUDE DENSITIES (UNIT WEIGHTS) AND VOID CONTENTS DETERMINED IN ACCORDANCE WITH ASTM C 1688 FOR FRESH MIXED PROPERTIES AND WITH ASTM C 140 FOR HARDENED CONCRETE PROPERTIES OF THE SAME PROPOSED MIXTURE. THE COMPOSITION OF THE PROPOSED CONCRETE MIXTURE SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND/OR APPROVAL AND SHALL COMPLY WITH THE FOLLOWING PROVISIONS UNLESS AN ALTERNATIVE COMPOSITION IS DEMONSTRATED TO COMPLY WITH THE PROJECT REQUIREMENTS. MIXTURE PERFORMANCE WILL BE AFFECTED BY PROPERTIES OF THE PARTICULAR MATERIALS USED. TRIAL MIXTURES MUST BE TESTED TO ESTABLISH PROPER PROPORTIONS AND DETERMINE EXPECTED BEHAVIOR. CONCRETE PRODUCERS MAY HAVE MIXTURE PROPORTIONS FOR PERVIOUS CONCRETE OPTIMIZED FOR PERFORMANCE WITH LOCAL MATERIALS BY USE OF AVAILABLE SOFTWARE PROGRAMS. APPENDIX 6 OF ACI 211.3R PROVIDES A GUIDE FOR PERVIOUS CONCRETE MIXTURE PROPORTIONING. GENERAL MIXTURE PROPORTIONS ARE AS FOLLOWS:

1. AGGREGATE/CEMENTITIOUS RATIO: RANGE OF 4:1 TO 5:1.
2. CONCRETE MIXTURE UNIT WEIGHT: RANGE OF 115 LB/FT³ TO 135 LB/FT³
3. CONCRETE MIXTURE VOID CONTENT: RANGE OF 13% TO 25%.
4. CEMENTITIOUS CONTENT: RANGE OF 450 LBS/YD³ TO 600 LB/YD³, TOTAL CEMENTITIOUS CONTENT.
5. SUPPLEMENTARY CEMENTITIOUS CONTENT: FLY ASH: 25 % MAXIMUM; SLAG: 25 % MAXIMUM, OR COMBINED SUPPLEMENTARY CEMENTITIOUS CONTENT: 35 % MAXIMUM.
6. WATER - CEMENTITIOUS RATIO: RANGE FROM 0.28 TO 0.35.
7. FIBER REINFORCEMENT
 - a. SYNTHETIC POLYPROPYLENE, TARGET 0.1% VOLUME OF MIXTURE OR RANGE 1 LB/YD³ TO 1.5 LB/YD³
 - b. CELLULOSE, RANGE 1.5 LB/YD³ TO 3 LB/YD³
8. AGGREGATE CONTENT: THE BULK VOLUME OF AGGREGATE PER CUBIC YARD (CUBIC METER) SHALL BE 27 FT³ (1 M³) WHEN CALCULATED FROM THE DRY RODDED DENSITY (UNIT WEIGHT) DETERMINED IN ACCORDANCE WITH ASTM C29 JIGGING OR RODDING PROCEDURE.
9. ADMIXTURES: ADMIXTURES SHALL BE USED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. DOSAGE OF AIR-ENTRAINING ADMIXTURE SHALL BE A MINIMUM OF 2 OZ./CWT OF CEMENTITIOUS MATERIAL.
10. MIX WATER: THE QUANTITY OF MIXING WATER SHALL BE ESTABLISHED TO PRODUCE A PERVIOUS CONCRETE MIXTURE OF THE DESIRABLE WORKABILITY TO FACILITATE PLACING, COMPACTION AND FINISHING TO THE DESIRED SURFACE CHARACTERISTICS. NOTE: MIX WATER SHALL BE SUCH THAT THE CEMENT PASTE DISPLAYS A WET METALLIC SHEEN WITHOUT CAUSING THE PASTE TO FLOW FROM THE AGGREGATE. (A CEMENT PASTE WITH A DULL-DRY APPEARANCE HAS INSUFFICIENT MIX WATER FOR HYDRATION.) INSUFFICIENT MIX WATER RESULTS IN INCONSISTENCY IN THE MIX AND POOR BOND STRENGTH. JOBSITE ADDITION OF MIX WATER IS PERMITTED TO ADJUST FOR DRY MIXTURES IN CONCRETE TRANSIT MIXERS. NOTE: HIGH WATER CONTENT RESULTS IN THE PASTE SEALING THE VOID SYSTEM PRIMARILY AT THE BOTTOM AND POOR SURFACE BOND.

EXECUTION: THE ENGINEER SHALL BE NOTIFIED AT LEAST 24 HOURS PRIOR TO ALL DETENTION LAYER (OR RECHARGE BED) PLACEMENT AND PERVIOUS CONCRETE PAVING WORK. CAREFUL CONSIDERATION FOR THE CONSTRUCTION SEQUENCE IS PRUDENT AND, TO THE GREATEST EXTENT POSSIBLE, THE SURROUNDING EARTHWORK/LANDSCAPE OPERATIONS SHOULD BE COMPLETED AND STABILIZED PRIOR TO STORMWATER STORAGE AND PERVIOUS CONCRETE PLACEMENTS.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:



SCALE:
N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

APPROVED
2024-004

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ITEM SPECIAL - PERVIOUS CONCRETE PAVEMENT (CONT.)

INSTALLATION

STORMWATER DETENTION LAYER

1. SUBGRADE PREPARATION AND PROTECTION OF ADJACENT BUILDING OR PAVEMENT FOUNDATIONS
 - a. EXISTING SUBGRADE UNDER DETENTION LAYER AREAS SHALL BE SHAPED TO DRAIN AND COMPACTED PER PLAN LINES, GRADES AND SPECIFICATIONS.
 - b. PROTECT ADJACENT FOOTINGS AND FOUNDATIONS FROM STORED STORMWATER BY INSTALLATION OF A CONCRETE CURB WALL OR IMPERMEABLE MEMBRANE WALL.
2. DETENTION LAYER INSTALLATION
 - a. UPON COMPLETION OF SUBGRADE WORK, THE ENGINEER SHALL BE NOTIFIED TO INSPECT AT THEIR DISCRETION BEFORE PROCEEDING WITH DETENTION LAYER INSTALLATION.
 - b. IMPERVIOUS LINER, WITH PIPE OR OTHER STORAGE DEVICES, AND DETENTION LAYER AGGREGATE SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT WHICH HAS TAKEN PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF IMPERVIOUS LINER AT THE CONTRACTOR'S EXPENSE.
 - c. PLACE IMPERVIOUS LINER IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS, INCLUDING OVERLAP WIDTH OF ADJACENT STRIPS. SECURE LINER TO WALLS OF DETENTION LAYER EXCAVATION AND TAKE STEPS NECESSARY TO PREVENT ANY RUNOFF OR SEDIMENT FROM ENTERING THE DETENTION LAYER EXCAVATION. FOR PROTECTION OF EXISTING ADJACENT BUILDING FOUNDATIONS, PLACE IMPERVIOUS LINER EXTENDING 6 FT BEYOND TOE OF SLOPE FACE AT BUILDING FACE, SECURE AS RECOMMENDED BY MANUFACTURER.
 - d. INSTALL COARSE AGGREGATE IN 6 IN. MAXIMUM LIFTS. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER DETENTION LAYER SUBGRADE TO A MINIMUM. INSTALL AGGREGATE TO GRADES REQUIRED ON THE PLANS.
 - e. IF REQUIRED INSTALL CHOKER BASE COURSE SIZE NO.57 (AASHTO) AGGREGATE EVENLY OVER SURFACE OF LARGER SIZED AGGREGATE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY THE ENGINEER FOR APPROVAL.
3. FOLLOWING PLACEMENT OF DETENTION LAYER AGGREGATE, THE IMPERVIOUS LINER SHALL BE FOLDED BACK ALONG ALL EXCAVATION EDGES TO PROTECT FROM SEDIMENT WASHOUT ALONG EXCAVATION EDGES. AT LEAST A 2 FT STRIP SHALL BE USED TO PROTECT THE DETENTION LAYER FROM ADJACENT BARE SOIL. THIS EDGE STRIP SHALL REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO DETENTION LAYER ARE STABILIZED AND VEGETATED. IN ADDITION, HAY BALES SHALL BE PLACED AT THE TOE OF SLOPES WHICH MAY BE ADJACENT TO DETENTION LAYERS TO FURTHER PREVENT SEDIMENT FROM WASHING INTO THE DETENTION LAYERS DURING SITE DEVELOPMENT. AS THE SITE IS FULLY STABILIZED, EXCESS IMPERVIOUS LINER ALONG THE DETENTION LAYER EDGES CAN BE CUT BACK TO COARSE AGGREGATE EDGE.

GROUNDWATER RECHARGE BED

1. SUBGRADE PREPARATION
 - a. SUBGRADE SHALL BE FLAT.
 - b. EXISTING SUBGRADE UNDER RECHARGE BED AREAS SHALL NOT BE COMPACTED OR SUBJECT TO EXCESSIVE CONSTRUCTION EQUIPMENT TRAFFIC PRIOR TO COARSE AGGREGATE BED PLACEMENT.
 - c. WHERE EROSION OF SUBGRADE HAS CAUSED ACCUMULATION OF FINE MATERIALS AND/OR SURFACE PONDING, THIS MATERIAL SHALL BE REMOVED WITH LIGHT EQUIPMENT AND THE UNDERLYING SOILS SCARIFIED TO A MINIMUM DEPTH OF 8 IN. WITH A YORK RAKE OR EQUIVALENT AND LIGHT TRACTOR.
 - d. BRING SUBGRADE OF COARSE AGGREGATE RECHARGE BED TO LINE, GRADE, AND ELEVATIONS REQUIRED.
 - e. FILL AND LIGHTLY REGRADE ANY AREAS DAMAGED BY EROSION, PONDING, OR TRAFFIC COMPACTION BEFORE THE PLACING OF COARSE AGGREGATE.
2. RECHARGE BED INSTALLATION
 - a. UPON COMPLETION OF SUBGRADE PREPARATION, THE ENGINEER SHALL BE NOTIFIED AND TO INSPECT AT THEIR DISCRETION BEFORE THE CONTRACTOR MAY PROCEED WITH RECHARGE BED INSTALLATION.
 - b. PROTECT ADJACENT FOOTINGS AND FOUNDATIONS FROM STORED STORMWATER BY INSTALLATION OF A CONCRETE CURB WALL OR IMPERMEABLE MEMBRANE WALL.
 - c. FILTER FABRIC, WITH PIPE OR ANY OTHER STORAGE DEVICES, AND RECHARGE BED AGGREGATE SHALL BE PLACED IMMEDIATELY AFTER APPROVAL OF SUBGRADE PREPARATION. ANY ACCUMULATION OF DEBRIS OR SEDIMENT WHICH HAS TAKEN PLACE AFTER APPROVAL OF SUBGRADE SHALL BE REMOVED PRIOR TO INSTALLATION OF FILTER FABRIC AT THE CONTRACTOR'S EXPENSE.
 - d. PLACE FILTER FABRIC IN ACCORDANCE WITH MANUFACTURER'S STANDARDS AND RECOMMENDATIONS. ADJACENT STRIPS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 16 IN.. THE CONTRACTOR SHALL SECURE FABRIC AT LEAST 2 FT OUTSIDE OF BED AND TAKE STEPS NECESSARY TO PREVENT ANY RUNOFF OR SEDIMENT FROM ENTERING THE STORAGE BED. FOR PROTECTION OF EXISTING ADJACENT BUILDING FOUNDATIONS, THE CONTRACTOR SHALL PLACE IMPERVIOUS LINER OVER FILTER FABRIC EXTENDING 6 FT BEYOND TOE OF SLOPE FACE AT BUILDING FACE, AND SECURE AS RECOMMENDED BY MANUFACTURER.
 - e. INSTALL COARSE AGGREGATE IN 6 IN. MAXIMUM LIFTS. LIGHTLY COMPACT EACH LAYER WITH EQUIPMENT, KEEPING EQUIPMENT MOVEMENT OVER STORAGE BED SUBGRADES TO A MINIMUM. INSTALL AGGREGATE TO GRADES REQUIRED ON THE DRAWINGS.
 - f. IF REQUIRED, INSTALL A MINIMUM 2 IN. NOMINAL THICKNESS CHOKER BASE COURSE SIZE NO. 57 (AASHTO) AGGREGATE EVENLY OVER SURFACE OF LARGER SIZED AGGREGATE BED, SUFFICIENT TO ALLOW PLACEMENT OF PAVEMENT, AND NOTIFY THE ENGINEER FOR APPROVAL.
 - g. FOLLOWING PLACEMENT OF BED AGGREGATE, THE FILTER FABRIC SHALL BE FOLDED BACK ALONG ALL BED EDGES TO PROTECT FROM SEDIMENT WASHOUT ALONG BED EDGES. AT LEAST A 2 FT STRIP SHALL BE USED TO PROTECT BEDS FROM ADJACENT BARE SOIL. THIS EDGE STRIP SHALL REMAIN IN PLACE UNTIL ALL BARE SOILS CONTIGUOUS TO BEDS ARE STABILIZED AND VEGETATED. IN ADDITION, HAY BALES SHALL BE PLACED AT THE TOE OF SLOPES WHICH MAY BE ADJACENT TO BEDS TO FURTHER PREVENT SEDIMENT FROM WASHING INTO BEDS DURING SITE DEVELOPMENT. AS THE SITE IS FULLY STABILIZED, EXCESS FILTER FABRIC ALONG THE BED EDGES CAN BE CUT BACK TO COARSE AGGREGATE EDGE.

PERVIOUS CONCRETE PAVEMENT

1. PAVEMENT THICKNESS: PAVEMENT THICKNESS FOR ALL APPLICATIONS (EXCLUDING HEAVY TRAFFIC LOADS) SHALL BE SINGLE-COURSE PLACEMENT 6 IN. THICK UNLESS OTHERWISE SPECIFIED IN THE PLANS.

2. FORMWORK:

- a. FORM MATERIALS ARE PERMITTED TO BE OF WOOD OR STEEL AND SHALL BE THE FULL DEPTH OF THE PAVEMENT. CAUTION: PROTECT IMPERMEABLE MEMBRANES FROM PUNCTURE OR TEAR WHEN PLACING FORMS AND FORM PINS. FORMS SHALL BE OF SUFFICIENT STRENGTH AND STABILITY TO SUPPORT MECHANICAL EQUIPMENT WITHOUT DEFORMATION OF PLAN PROFILES FOLLOWING SPREADING, STRIKE-OFF AND COMPACTION OPERATIONS. FORMS MAY HAVE A REMOVABLE SPACER OF 1/2 IN. TO 3/4 IN. THICKNESS PLACED ABOVE THE DEPTH OF PAVEMENT. THE SPACERS SHALL BE REMOVED FOLLOWING PLACEMENT AND VIBRATORY STRIKE-OFF TO ALLOW ROLLER COMPACTION. (REMOVABLE SPACERS MAY NOT BE NECESSARY IF OTHER MEANS OF STRIKE-OFF AND CONSOLIDATION ARE USED, SUCH AS A HYDRAULICALLY ACTUATED PIPE ROLLER SCREED.)
- b. THE CONTRACTOR WILL BE RESTRICTED TO PAVEMENT PLACEMENT WIDTHS OF A MAXIMUM OF 20 FT, UNLESS THE CONTRACTOR CAN DEMONSTRATE COMPETENCE TO PROVIDE PAVEMENT PLACEMENT WIDTHS GREATER THAN THE MAXIMUM SPECIFIED TO THE SATISFACTION OF THE ENGINEER. LARGE SCALE MECHANIZED PLACEMENT OF PERVIOUS CONCRETE WITH SLIPFORM CONCRETE PAVING MACHINES, LASER SCREEDS OR ASPHALT PAVING MACHINES MAY PRECLUDE USE OF FIXED FORMS.

3. MIXING AND HAULING:

- a. PRODUCTION: PERVIOUS CONCRETE SHALL BE MANUFACTURED AND DELIVERED IN ACCORDANCE WITH ASTM C 94.
- b. MIXING: MIXTURES SHALL BE PRODUCED IN CENTRAL MIXERS OR IN TRANSIT (TRUCK) MIXERS. WHEN CONCRETE IS DELIVERED IN AGITATING OR NON-AGITATING UNITS, THE CONCRETE SHALL BE MIXED IN THE CENTRAL MIXER FOR A MINIMUM OF 1.0 MINUTE OR UNTIL A HOMOGENEOUS MIX IS ACHIEVED. CONCRETE MIXED IN TRANSIT MIXERS SHALL BE MIXED AT THE SPEED DESIGNATED AS MIXING SPEED BY THE MANUFACTURER FOR 75 - 100 REVOLUTIONS.
- c. TRANSPORTATION: THE PERVIOUS CONCRETE MIXTURE MAY BE TRANSPORTED OR MIXED ON SITE AND DISCHARGE OF INDIVIDUAL LOADS SHALL BE COMPLETED WITHIN ONE (1) HOUR OF THE INTRODUCTION OF MIX WATER TO THE CEMENT. DELIVERY TIMES MAY BE EXTENDED TO 90 MINUTES WHEN A HYDRATION STABILIZER IS USED.
- d. DISCHARGE: EACH TRUCKLOAD SHALL BE VISUALLY INSPECTED FOR CONSISTENCY OF CONCRETE MIXTURE. WATER ADDITION SHALL BE PERMITTED AT THE POINT OF DISCHARGE TO OBTAIN THE REQUIRED MIX CONSISTENCY, PROVIDED A MEASURABLE QUANTITY IS DISCHARGED, AND PROVIDED NO MORE THAN HALF OF THE BATCH QUANTITY HAS BEEN DISCHARGED. A MINIMUM OF 30 REVOLUTIONS AT THE MANUFACTURER'S DESIGNATED MIXING SPEED SHALL BE COUNTED FOLLOWING THE ADDITION OF ANY WATER TO THE MIX, PRIOR TO FURTHER DISCHARGE. DISCHARGE SHALL BE A CONTINUOUS OPERATION AND SHALL BE COMPLETED AS QUICKLY AS POSSIBLE. CONCRETE SHALL BE DEPOSITED AS CLOSE TO ITS FINAL POSITION AS PRACTICAL AND SUCH THAT DISCHARGED CONCRETE IS INCORPORATED INTO PREVIOUSLY PLACED PLASTIC CONCRETE. IF CONSOLIDATION OCCURS DURING CONCRETE DISCHARGE, PLACEMENT SHALL BE HALTED AND WET CONCRETE REMOVED (THIS MAY HAPPEN TOWARDS THE END OF SOME LOADS).

4. PLACING AND FINISHING:

- a. PRIOR TO PLACING CONCRETE, THE SURFACE OF THE AGGREGATE DETENTION LAYER (OR RECHARGE BED) SHALL BE SOAKED AND IN A WET CONDITION AT TIME OF PLACEMENT. FAILURE TO MOISTEN THE AGGREGATE SURFACE WILL RESULT IN A REDUCTION IN STRENGTH OF THE PAVEMENT.
- b. CONCRETE MAY BE DEPOSITED INTO THE FORMS BY MIXER TRUCK CHUTE, CONVEYOR OR BUGGY.
- c. UNLESS OTHERWISE PERMITTED, THE CONTRACTOR SHALL UTILIZE A MECHANICAL VIBRATORY SCREED TO STRIKE OFF THE CONCRETE 2 IN. TO 3/4 IN. ABOVE FINAL HEIGHT, UTILIZING THE FORM SPACERS DESCRIBED IN FORMWORK. AN ALTERNATIVE METHOD TO STRIKE OFF AND COMPACT THE CONCRETE IS TO USE A HYDRAULICALLY ACTUATED PIPE ROLLER SCREED AS DESCRIBED UNDER 1.04 SPECIAL EQUIPMENT. IF APPROVED BY THE ENGINEER IN WRITING, THE CONTRACTOR MAY PLACE THE PERVIOUS CONCRETE WITH EITHER SLIP FORM OR VIBRATORY FORM RIDING EQUIPMENT WITH A FOLLOWING COMPACTIVE UNIT THAT WILL PROVIDE A MINIMUM OF 10 PSI VERTICAL FORCE TO THE CONCRETE. SIMILARLY, STRIKE OFF BY HAND STRAIGHTEDGE MAY BE PERMITTED FOR SIDEWALKS AND OTHER SMALL AREAS FOLLOWED BY COMPACTION.
- d. CARE MUST BE TAKEN TO PREVENT CLOSING THE VOID STRUCTURE OF PERVIOUS CONCRETE. AFTER MECHANICAL OR OTHER APPROVED STRIKE-OFF AND COMPACTION OPERATION, NO OTHER FINISHING OPERATION WILL BE ALLOWED. INTERNAL VIBRATION SHALL NOT BE PERMITTED. IF VIBRATION, INTERNAL OR SURFACE APPLIED, IS USED, IT SHALL BE SHUT OFF IMMEDIATELY WHEN FORWARD PROGRESS IS HALTED FOR ANY REASON.
- e. PLACED CONCRETE SHALL NOT BE DISTURBED WHILE IN THE PLASTIC STATE. LOW SPOTS AFTER THE SCREEDING OPERATION SHALL BE OVER-FILLED FOR SURFACE REPAIR AND EITHER TAMPED TO DESIRED ELEVATION WITH HAND TAMPERS OR PASSING THE SCREED A SECOND TIME TO CORRECT THE ELEVATION.
- f. FOLLOWING STRIKE-OFF, REMOVE SPACERS AND COMPACT THE CONCRETE TO THE FORM LEVEL, UTILIZING A STEEL ROLLER, A PLATE COMPACTOR ON PLYWOOD OR OTHER METHOD APPROVED BY THE ENGINEER. LONGITUDINAL ROLLING SHALL BE FOLLOWED IMMEDIATELY BY CROSS ROLLING AND JOINT ROLLING (IF SPECIFIED). CARE SHALL BE TAKEN DURING COMPACTION THAT SUFFICIENT COMPACTIVE FORCE IS ACHIEVED WITHOUT EXCESSIVELY WORKING THE CONCRETE SURFACE THAT MIGHT RESULT IN SEALING OFF THE SURFACE POROSITY. ROLLERS MAY REQUIRE CLEANING AND TREATMENT TO PREVENT AGGREGATE PICK-UP DURING ROLLING OPERATIONS.
- g. HAND TAMPERS AND AN EDGING TOOL WITH 1/4 IN. RADIUS SHALL BE USED TO COMPACT THE CONCRETE ALONG THE SLAB EDGES IMMEDIATELY ADJACENT TO THE FORMS. AFTER COMPACTION, INSPECTION AND SURFACE REPAIR, NO FURTHER FINISHING SHALL BE PERFORMED ON THE CONCRETE. SURFACE CURING SHALL BEGIN IMMEDIATELY.
- h. THE PERVIOUS CONCRETE PAVEMENT SHALL BE COMPACTED TO THE REQUIRED CROSS-SECTION AND SHALL NOT DEVIATE MORE THAN +/- 3/8 IN. IN 10 FT FROM PROFILE GRADE.

5. JOINTING

- a. CONTRACTION (CONTROL) JOINTS SHALL BE INSTALLED AT REGULAR INTERVALS NOT TO EXCEED 20 FT, AND SLAB LENGTH SHALL NOT EXCEED 1.25 TIMES THE WIDTH OF THE SLAB. TRANSVERSE CONTRACTION JOINTS SHALL BE INSTALLED AT 1/4 THE DEPTH OF THE THICKNESS OF THE PAVEMENT. SAW CUT THESE JOINTS AFTER THE CONCRETE HAS HARDENED WITH CAREFUL ATTENTION TO PREVENT RAVELING.
- b. JOINTING HARDENED CONCRETE: SAW-CUTS SHALL BE MADE AS SOON AS THE PAVEMENT HAS HARDENED SUFFICIENTLY TO PREVENT RAVELING AND UNCONTROLLED CRACKING. EARLY ENTRY SAWING OCCURS LATER WITH PERVIOUS CONCRETE THAN WITH CONVENTIONAL CONCRETE. FOR EITHER METHOD, THE CURING COVER SHALL BE TEMPORARILY REMOVED AND THE SURFACE KEPT MISTED TO PREVENT MOISTURE LOSS DURING SAWING. SAWDUST OR SLURRY SHALL BE PROMPTLY REMOVED TO PROTECT THE PERVIOUS CONCRETE PORES. AFTER SAWING, THE CURING COVER SHALL BE SECURELY REPLACED FOR THE REMAINDER OF THE CURING CYCLE.

- c. TRANSVERSE CONSTRUCTION JOINTS: TRANSVERSE CONSTRUCTION JOINTS SHALL BE INSTALLED WHENEVER PLACING IS SUSPENDED FOR 30 MINUTES OR WHENEVER CONCRETE IS NO LONGER WORKABLE.
- d. ISOLATION JOINTS: ISOLATION JOINTS SHALL BE USED WHEN ABUTTING FIXED VERTICAL STRUCTURES SUCH AS LIGHT POLE BASES, BUILDING FOUNDATIONS, ETC.
- e. EDGING, USING A TOOL WITH 1/4 IN. RADIUS, AND ADDITIONAL COMPACTION WITH HAND TAMPING TOOLS SHALL BE PERFORMED ALONG ALL FORM LINES AND ALONG ALL ISOLATION JOINTS AND CONSTRUCTION JOINTS TO REDUCE POTENTIAL FOR RAVELING UNDER TRAFFIC.

6. CURING: A. CURING PROCEDURES SHALL BEGIN IMMEDIATELY, NO LATER THAN 10 MINUTES, FROM THE TIME THE PERVIOUS CONCRETE IS DISCHARGED FROM THE TRUCK. PLACING, FINISHING AND TOOLED JOINTING AND EDGING MUST BE COMPLETED WITHIN THE 10-MINUTE WINDOW FROM DISCHARGE. THE PAVEMENT SURFACE SHALL BE COVERED WITH A MINIMUM OF 4 MIL THICK CLEAR POLYETHYLENE SHEET OR OTHER APPROVED COVERING MATERIAL, PRIOR TO COVERING. AN EVAPORATIVE REDUCER SHALL BE SPRAYED ABOVE THE SURFACE WHEN REQUIRED DUE TO AMBIENT CONDITIONS (HIGH TEMPERATURE, HIGH WIND, OR LOW HUMIDITY). THE COVER SHALL OVERLAP ALL EXPOSED EDGES AND SHALL BE SECURED (WITHOUT USING DIRT OR STONE) TO PREVENT DISLOCATION DUE TO WINDS OR ADJACENT TRAFFIC CONDITIONS. FOR ADDITIONAL GUIDANCE ON HOT WEATHER CONCRETING, SEE ACI 305, AND FOR COLD WEATHER CONCRETING SEE ACI 306.

- a. IMMEDIATELY AFTER SCREEDING, THE SURFACE SHALL BE KEPT MOIST AND EVAPORATION PREVENTED USING A SPRAY APPLIED CURING COMPOUND AND/OR EVAPORATION RETARDER IMMEDIATELY AFTER SCREEDING. NOTE: THE LOW WATER/CEMENTITIOUS RATIO AND HIGH AMOUNT OF EXPOSED SURFACE OF PERVIOUS CONCRETE MAKES IT ESPECIALLY SUSCEPTIBLE TO DRYING OUT. IMMEDIATELY AFTER EACH TRANSVERSE JOINTING THE POLYETHYLENE SHEET CURING SHALL BE APPLIED THEN CROSS ROLLING SHALL BE PERFORMED.
 - b. THE CURING COVER SHALL REMAIN SECURELY IN PLACE FOR A MINIMUM OF 7 DAYS. UNINTERRUPTED. NO VEHICULAR TRAFFIC SHALL BE PERMITTED ON THE PAVEMENT UNTIL CURING IS COMPLETE (7 DAYS) AND NO TRUCK TRAFFIC SHALL BE PERMITTED FOR AT LEAST 14 DAYS. PEDESTRIAN TRAFFIC MAY BE PERMITTED ON THE CURING CONCRETE AFTER 24 HOURS. THE ENGINEER MAY PERMIT EARLIER TRAFFIC OPENING TIMES.
7. SEALING -WHEN PERVIOUS CONCRETE IS PRODUCED WITH AN INTEGRAL COLOR PIGMENT, A UV RESISTANT, NON-YELLOWING ACRYLIC BASED SEALER PER ASTM C 309 SHALL BE LIGHTLY BROADCAST ONTO THE CURED PAVEMENT SURFACE TO BRIGHTEN AND HIGHLIGHT THE COLOR PIGMENT WITHOUT CLOGGING THE SURFACE PORES OF THE PERVIOUS MATRIX AND DISRUPTING ITS PERMEABILITY. SOME SURFACE PREPARATION MAY HAVE TO BE CONDUCTED TO PREPARE THE SEALER. SUBSEQUENT APPLICATIONS OF THE SEALER SHALL BE A PART OF THE MAINTENANCE PLAN AND NOT INCLUDED IN THIS CONTRACT.

8. QUALITY CONTROL - CONCRETE: THE OWNER SHALL EMPLOY A TESTING LABORATORY THAT CONFORMS TO THE REQUIREMENTS OF ASTM E329 AND ASTM C1077. ALL PERSONNEL ENGAGED IN CONCRETE TESTING SHALL BE CERTIFIED BY THE AMERICAN CONCRETE INSTITUTE AS ACI CONCRETE FIELD TECHNICIANS OR EQUIVALENT.

- a. TRADITIONAL CONCRETE TESTING PROCEDURES FOR STRENGTH AND SLUMP CONTROL ARE NOT APPLICABLE TO THIS TYPE OF PAVEMENT MATERIAL. PROCEDURES TO BE USED PER THIS GUIDE SPECIFICATION INCLUDE: ASTM C 172, ASTM C 29, ASTM C 42 AND ASTM C 1688.
- b. CONCRETE TESTS SHALL BE PERFORMED FOR EACH 50 CY OR FRACTION THEREOF WITH A MINIMUM OF ONE SET OF TESTS FOR EACH DAY'S PLACEMENT.
- c. SAMPLING: PLASTIC CONCRETE SHALL BE SAMPLED IN ACCORDANCE WITH ASTM C 172.
- d. DENSITY (UNIT WEIGHT) - DENSITY (UNIT WEIGHT) OF THE PLASTIC CONCRETE SHALL BE MEASURED IN ACCORDANCE WITH ASTM C 1688. THE DENSITY (UNIT WEIGHT) OF THE DELIVERED CONCRETE SHALL BE +/- 5 LB/CF OF THE SUBMITTED FRESH DENSITY (UNIT WEIGHT).
- e. VOID CONTENT: VOID CONTENT OF THE PLASTIC CONCRETE SHALL BE CALCULATED AS PER ASTM C 1688 AND COMPARED TO THE SUBMITTED FRESH VOID CONTENT. UNLESS OTHERWISE SPECIFIED, VOID CONTENT SHALL BE BETWEEN 13% AND 25%. AFTER A MINIMUM OF SEVEN (7) DAYS, HARDENED CONCRETE SHALL BE TESTED AT A RATE OF ONE SET OF THREE CORES PER 50 CY OF CONCRETE PLACED ON ONE DAY OR FRACTION THEREOF. CORES SHALL BE DRILLED IN ACCORDANCE WITH ASTM C 42. THE CORES SHALL BE MEASURED FOR THICKNESS, VOID STRUCTURE AND UNIT WEIGHT. CORES SHALL BE TAKEN AT MINIMUM 2 FT AWAY FROM THE EDGE OF PLACEMENT TO ENSURE A REPRESENTATIVE SAMPLE.
- f. THICKNESS: UNTRIMMED HARDENED CORE SAMPLES SHALL BE USED TO DETERMINE PLACEMENT THICKNESS. THE AVERAGE OF ALL PRODUCTION CORES WHEN MEASURED FOR LENGTH SHALL NOT BE MORE THAN 1/2-INCH LESS THAN THE SPECIFIED DESIGN THICKNESS.
- g. CORE DENSITY (UNIT WEIGHT) AND VOID CONTENT: THE CORES SHALL BE TESTED FOR AVERAGE DENSITY (UNIT WEIGHT) AND VOID CONTENT USING ASTM C 140. DENSITY (UNIT WEIGHT) OF CORES TRIMMED AND TESTED IN THE SATURATED CONDITION, PER ASTM C 140, PARAGRAPH 9.3.1, SHALL BE +/- 5 % OF THE DESIGN UNIT WEIGHT OR APPROVED HARDENED DENSITY FROM THE TEST PANELS. HARDENED VOID CONTENT SHALL BE NOT BE LOWER THAN 2% BELOW THE SPECIFIED DESIGN VOID CONTENT OR APPROVED HARDENED VOID CONTENT FROM THE TEST PANELS. VOID CONTENT SHALL CALCULATED AS FOLLOWS:
 - 1) % VOIDS = 1 - ((DD/DI) * 100) WHERE: DD = OVEN DRIED DENSITY OF CORE DI = IMMERSED DENSITY OF CORE.
- h. REMOVE AND REPLACE CONCRETE PAVEMENT WHERE TEST RESULTS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED REQUIREMENTS.

9. BASIS OF PAYMENT PERVIOUS CONCRETE PAVEMENT SHALL BE PAID FOR BASED ON THE SQUARE YARDS OF IN-PLACE PRODUCT INCLUDING MATERIALS AND LABOR, THICKNESS, AND VOID CONTENT.
10. PERFORMANCE AND INSPECTION/MAINTENANCE EXCESSIVE RAVELING: AT OR BEFORE 28 DAYS AFTER PLACEMENT, ANY AREAS OF EXCESSIVE SURFACE RAVELING, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED OR REPAIRED BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE PROJECT.
11. SURFACE DRAINAGE: AT OR BEFORE 28 DAYS AFTER PLACEMENT EITHER THE AVERAGE INFILTRATION RATE OF MULTIPLE LOCATIONS OR THE INFILTRATION RATE OF A DETERMINED LOCALIZED AREA OF THE IN-PLACE PERVIOUS CONCRETE SHALL BE DETERMINED PER ASTM C 1701. ANY AREAS OF INSUFFICIENT SURFACE POROSITY, AS DETERMINED BY THE ENGINEER, SHALL BE REMOVED AND REPLACED BY THE CONTRACTOR, AT NO ADDITIONAL COST TO THE PROJECT.
12. INSPECTION/MAINTENANCE: AT OR BEFORE 28 DAYS AFTER PLACEMENT, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A WRITTEN INSPECTION/MAINTENANCE PLAN TO PREVENT THE CLOGGING OF THE PERVIOUS CONCRETE PAVEMENT. THE PLAN SHALL INCLUDE PERIODIC TESTING OF THE INFILTRATION RATE PER ASTM C1701 AND METHODS TO RESTORE POROSITY IF THE RATE DROPS BELOW 75% OF THE ORIGINAL DETERMINED RATE. ACCEPTABLE METHODS TO RESTORE LEVELS OF POROSITY ARE EITHER TO VACUUM OR VACUUM WITH SIMULTANEOUS POWER WASH THE PERVIOUS CONCRETE SECTIONS. THE INSPECTION / MAINTENANCE PLAN SHALL BE AT NO ADDITIONAL COST TO THE PROJECT.

ITEM SPECIAL - CONCRETE PARKING BLOCK

THE WORK OF THIS SECTION CONSISTS OF PROVIDING ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO PROVIDE AND PLACE CONCRETE PARKING BLOCKS AS INDICATED ON THE CONTRACT DOCUMENTS AND AS SPECIFIED IN THIS SECTION.

SUBMITTALS

1. PRODUCT DATA: FOR EACH TYPE OF PRODUCT.

PRODUCTS

PARKING BLOCKS

1. CONCRETE WHEEL STOPS: PRECAST, STEEL-REINFORCED, AIR-ENTRAINED CONCRETE, 4000-PSI MINIMUM COMPRESSIVE STRENGTH, 5 INCHES HIGH BY 7 INCHES WIDE BY 72 INCHES LONG. PROVIDE CHAMFERED CORNER, TRANSVERSE DRAINAGE SLOTS ON UNDERSIDE, AND A MINIMUM OF TWO FACTORY-FORMED OR -DRILLED VERTICAL HOLES THROUGH WHEEL STOP FOR ANCHORING TO SUBSTRATE.
 - a. SURFACE APPEARANCE: FREE OF POCKETS, SAND STREAKS, HONEYCOMBS, AND OTHER OBVIOUS DEFECTS. CORNERS SHALL BE UNIFORM, STRAIGHT, AND SHARP.
 - b. SURFACE SEALER: MANUFACTURER'S STANDARD SALT-RESISTANT, CLEAR SEALER, APPLIED AT PRECASTING LOCATION.
 - c. MOUNTING HARDWARE: GALVANIZED-STEEL SPIKE OR DOWEL, 3/4-INCH DIAMETER, 24-INCH MINIMUM LENGTH.

EXAMINATION

1. VERIFY THAT PAVEMENT IS IN SUITABLE CONDITION TO BEGIN INSTALLATION ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS.
2. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED AS DETERMINED BY THE ENGINEER.

INSTALLATION

1. INSTALL WHEEL STOPS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS UNLESS OTHERWISE INDICATED.
2. SECURELY ANCHOR WHEEL STOPS TO PAVEMENT WITH HARDWARE IN EACH PREFORMED VERTICAL HOLE IN WHEEL STOP AS RECOMMENDED IN WRITING BY MANUFACTURER. RECESS HEAD OF HARDWARE BENEATH TOP OF WHEEL STOP.

REVISIONS	
MARK	DATE

PLANS PREPARED BY:



CIVIL ENGINEERING
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www.kleingers.com
330 Worthington Rd
Suite 14
Westerville, OH 43082
614.882.4211

SCALE:

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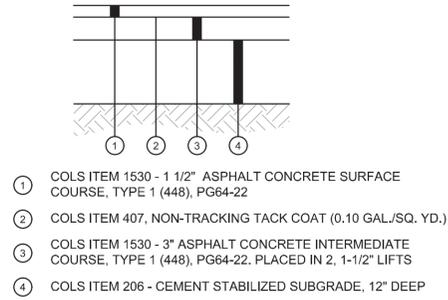
WALNUT RIDGE PARK IMPROVEMENTS

SPECIFICATIONS

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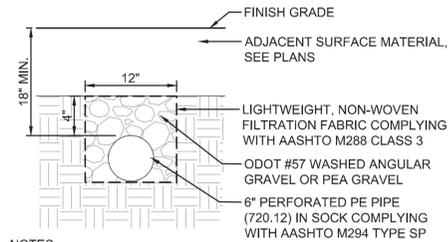
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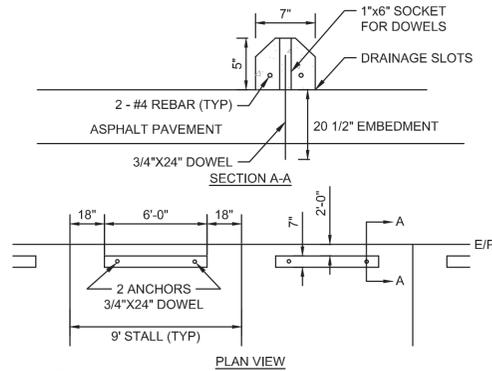
- 1 COLS ITEM 1530 - 1 1/2" ASPHALT CONCRETE SURFACE COURSE, TYPE 1 (448), PG64-22
- 2 COLS ITEM 407, NON-TRACKING TACK COAT (0.10 GAL./SQ. YD.)
- 3 COLS ITEM 1530 - 3" ASPHALT CONCRETE INTERMEDIATE COURSE, TYPE 1 (448), PG64-22. PLACED IN 2, 1-1/2" LIFTS
- 4 COLS ITEM 206 - CEMENT STABILIZED SUBGRADE, 12" DEEP

1 ASPHALT PAVEMENT
N.T.S.



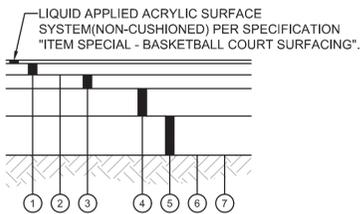
- NOTES:
- INSTALLATION SHALL COMPLY WITH COLS ITEM 605.
 - SEE PLANS AND APPROPRIATE DETAIL FOR FINISH TREATMENT.
 - DRAIN SHALL BE SLOPED TO DRAIN AT A MINIMUM OF 0.50%.
 - PAYMENT SHALL INCLUDE THE UNDERDRAIN PIPING, FILTER SOCK, STONE, FABRIC, AND ALL TOOLS, LABOR, MATERIALS, AND INCIDENTALS NECESSARY TO INSTALL A COMPLETE SYSTEM.

2 6" UNDERDRAIN, AS PER PLAN
N.T.S.



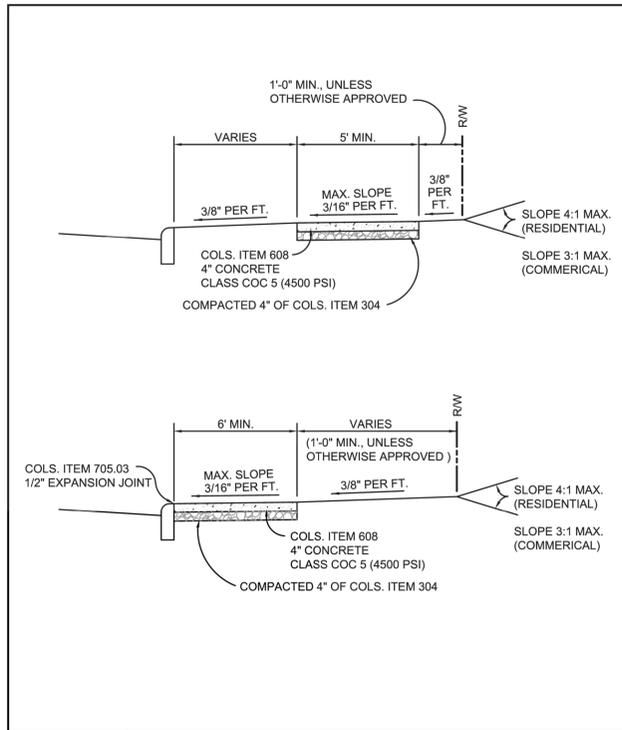
- NOTE:
- SEE SPECIFICATION 'ITEM SPECIAL - CONCRETE PARKING BLOCK' FOR ADDITIONAL INFORMATION.

3 PRECAST CONCRETE PARKING BLOCK
N.T.S.



- 1 ITEM SPEC - 1 1/2" SPECIALTY ASPHALT PAVEMENT SURFACE COURSE, TYPE 1 (448), PG64-22. NO SLAG OR PYRITE IN MIXTURE
- 2 COLS ITEM 407, NON-TRACKING TACK COAT (0.10 GAL./SQ. YD.)
- 3 ITEM SPEC - 2" SPECIALTY ASPHALT PAVEMENT INTERMEDIATE COURSE, TYPE 2 (448), PG64-22. NO SLAG OR PYRITE IN MIXTURE.
- 4 COLS ITEM 304 - 4" AGGREGATE BASE
- 5 6" CLEAN WASHED ANGULAR 57s
- 6 COLS ITEM 712.09 - TYPE D NON-WOVEN GEOTEXTILE FABRIC
- 7 COLS ITEM 204 - SUBGRADE COMPACTION

4 SPECIALTY ASPHALT PAVEMENT
N.T.S.



	CITY OF WESTERVILLE DEPARTMENT OF PLANNING AND DEVELOPMENT ENGINEERING DIVISION	STANDARD CONSTRUCTION DRAWING
	CITY ENGINEER	DATE

NOTES: THE BELOW NOTES APPLY TO ALL WORK WITHIN THE PUBLIC RIGHT OF WAY AND OR PUBLIC EASEMENT AREAS.

CURB RAMPS, SIDEWALKS, AND PATHWAYS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE GUIDELINES PROPOSED BY THE UNITED STATES ACCESS BOARD (ARCHITECTURAL AND TRANSPORTATION BARRIERS COMPLIANCE BOARD) AS PUBLISHED IN THE "PROPOSED GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY" AND THE "ACCESSIBILITY GUIDELINES FOR PEDESTRIAN FACILITIES IN THE PUBLIC RIGHT-OF-WAY, SHARED USE PATHS".

THE CONTRACTOR SHALL REFERENCE THE LATEST EDITION OF THE CITY OF COLUMBUS CURB RAMP STANDARD DRAWINGS FOR ADDITIONAL DETAILS AND MATERIAL REQUIREMENTS. FINAL ACCEPTANCE AND COMPLIANCE WITH THE ABOVE REFERENCED GUIDELINES SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

ALL CURB RAMPS, SIDEWALKS, PATHWAYS AND/OR ASSOCIATED CONCRETE WORK FOUND TO BE NON-COMPLIANT WITH THE ABOVE GUIDELINES SHALL BE REMOVED AND RECONSTRUCTED BY THE CONTRACTOR TO MEET THE ABOVE GUIDELINES.

ALL NEW CONCRETE AND ASPHALT SHALL HAVE POSITIVE DRAINAGE. ANY AREAS HOLDING WATER SHALL BE REMOVED AND RECONSTRUCTED BY THE CONTRACTOR.

ALL CONCRETE SHALL BE CLASS COC 5 (4500 PSI).

USE SAW CUT ON ALL JOINTS (CONTROL, TRANSVERSE, CONTRACTION, EXPANSION, ETC.) DIVIDE THE SURFACE OF THE WALKS INTO EQUALLY SPACED RECTANGULAR BLOCKS AT APPROXIMATELY 5-FOOT INTERVALS. NOT PERMITTED IS A TOOL JOINT AND OR EDGING TOOL TO EDGE ALL OUTSIDE EDGES AND JOINTS UNLESS OTHERWISE APPROVED.

ALL SAWCUTTING SHALL BE PERFORMED USING WATER.

IMMEDIATELY AFTER FINISHING, CONCRETE SHALL BE CURED AND SEALED WITH A CLEAR CONCRETE CURING MEMBRANE. USE OF PIGMENTED CURING MEMBRANES SHALL RESULT IN THE REMOVAL AND REPLACEMENT OF ANY CONCRETE SO CURED AT THE CONTRACTOR'S EXPENSE.

WHERE RESIDENTIAL DRIVEWAYS CROSS THE SIDEWALK, THE SIDEWALK SHALL BE A MINIMUM OF 6" THICK.

ALL CONCRETE SHALL BE PLACED IN ONE COURSE AND FINISHED ACCORDING TO SPECIFICATIONS.

THE CONTRACTOR SHALL PROPERLY PROTECT THE WORK AREA DURING CONSTRUCTION AND SHALL NOT REMOVE THE PROTECTION UNTIL THE WORK AREA IS 100% COMPLETE AND ACCESSIBLE.

EXPANSION JOINTS SHALL BE PLACED AT 30' INTERVALS AND AT PROPERTY LINES ON SIDEWALKS AND WHEREVER NEW CONCRETE ABUTS EXISTING CONCRETE, FOUNDATIONS, CASTINGS, WATER VALVES, ETC.

ADJUST WATER AND GAS VALVE BOXES IN THE SIDEWALK TO THE PROPER GRADE.

FORMS SHALL CONSIST OF LUMBER (2" NOMINAL THICKNESS) OR METAL OF EQUAL STRENGTH. FULL DEPTH FORMWORK SHALL BE USED.

A MINIMUM OF 48 HOURS BEFORE CONCRETE IS TO BE PLACED, CALL 614-901-6650 TO SCHEDULE A FORMWORK INSPECTION. IN NO CASE MAY CONCRETE BE PLACED WITHOUT APPROVAL OF FORM WORK BY THE INSPECTOR.

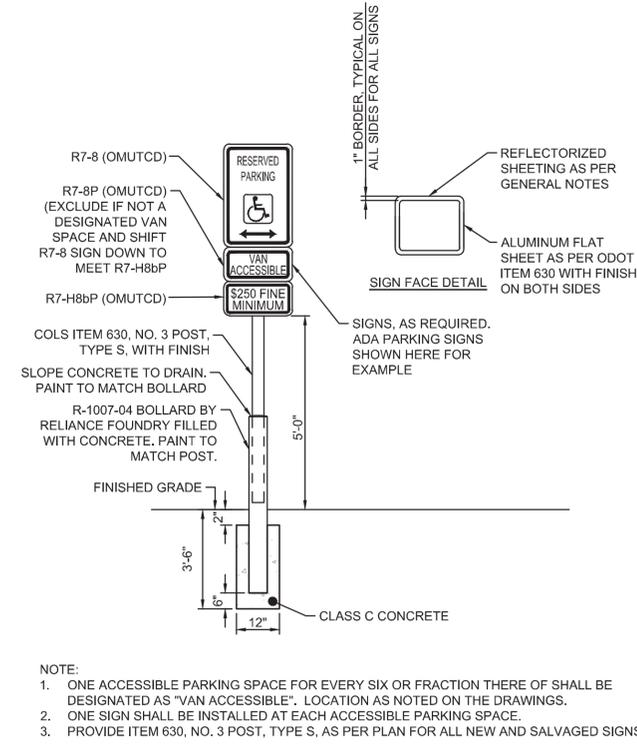
COLD WEATHER CONCRETE PROTECTION SHALL BE PROVIDED IN ACCORDANCE WITH COLS. ITEM 451.061.

IMMEDIATELY AFTER FINISHING, CONCRETE SHALL BE CURED AND SEALED WITH A CURING MEMBRANE IN AN APPROVED MANNER.

FOR REPLACEMENT WORK, THE SIDEWALK AND CURB SHALL BE REMOVED TO EXISTING JOINT OR NO CLOSER THAN 5- FEET FROM AN EXISTING JOINT.

	CITY OF WESTERVILLE DEPARTMENT OF PLANNING AND DEVELOPMENT ENGINEERING DIVISION	STANDARD CONSTRUCTION DRAWING
	CITY ENGINEER	DATE

5 CONCRETE WALK
N.T.S.



6 ACCESSIBLE PARKING SIGN
N.T.S.

NOTES:

- ONE ACCESSIBLE PARKING SPACE FOR EVERY SIX OR FRACTION THERE OF SHALL BE DESIGNATED AS "VAN ACCESSIBLE". LOCATION AS NOTED ON THE DRAWINGS.
- ONE SIGN SHALL BE INSTALLED AT EACH ACCESSIBLE PARKING SPACE.
- PROVIDE ITEM 630, NO. 3 POST, TYPE S, AS PER PLAN FOR ALL NEW AND SALVAGED SIGNS.

THE PATHWAY SHALL BE CONSTRUCTED WITH A PREFERRED 4 FOOT HORIZONTAL CLEARANCE (SAFETY ZONE) ON EACH SIDE, WITH A MINIMUM OF 2 FOOT HORIZONTAL CLEARANCE ON EACH SIDE, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

THE PATHWAY SHALL HAVE A 10 FOOT VERTICAL CLEARANCE ACROSS THE PATHWAY AND THE HORIZONTAL CLEARANCE AREA, UNLESS OTHERWISE APPROVED BY THE CITY ENGINEER.

THE CITY OF WESTERVILLE FOLLOWS THE "GUIDE FOR THE DEVELOPMENT OF BICYCLE FACILITIES, 2012 FOURTH EDITION".

	CITY OF WESTERVILLE DEPARTMENT OF PLANNING AND DEVELOPMENT ENGINEERING DIVISION	STANDARD CONSTRUCTION DRAWING
	CITY ENGINEER	DATE

7 RECREATIONAL PATHWAY
N.T.S.

NOTES:

- THE CROSSWALK BARS SHALL BE CENTERED ON THE SIDEWALK/BIKEPATH RAMPS.
- THE TYPICAL 36" GAPS BETWEEN THE 24" CROSSWALK BARS SHOULD BE A UNIFORM WIDTH AS MUCH AS POSSIBLE. THE MAXIMUM GAP BETWEEN CROSSWALK BARS SHOULD BE 42".
- A MINIMUM OF 1.5' CLEAR DISTANCE SHALL BE LEFT ADJACENT TO THE CURB FACE OR EDGE OF PAVEMENT.
- CROSSWALK BARS SHALL BE PARALLEL TO THE CENTERLINE MARKING.
- THE LAYOUT AND DIMENSIONS SHALL BE APPROVED BY CITY ENGINEER PRIOR TO INSTALLATION.

	CITY OF WESTERVILLE DEPARTMENT OF PLANNING AND DEVELOPMENT ENGINEERING DIVISION	STANDARD CONSTRUCTION DRAWING
	CITY ENGINEER	DATE

8 CROSSWALK PAVEMENT MARKINGS
N.T.S.

MARK	DATE	REVISIONS DESCRIPTION

PLANS PREPARED BY:

CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
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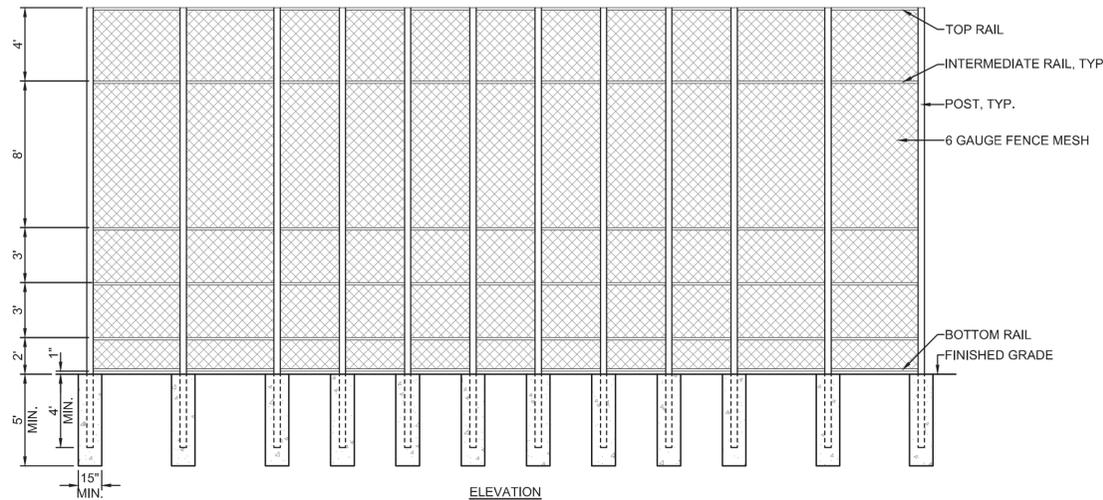
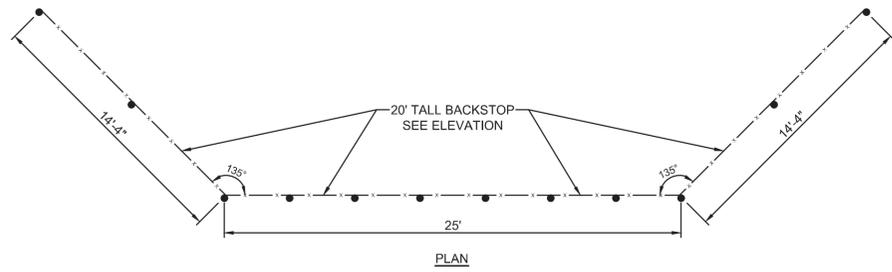
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WALNUT RIDGE PARK IMPROVEMENTS

SITE DETAILS

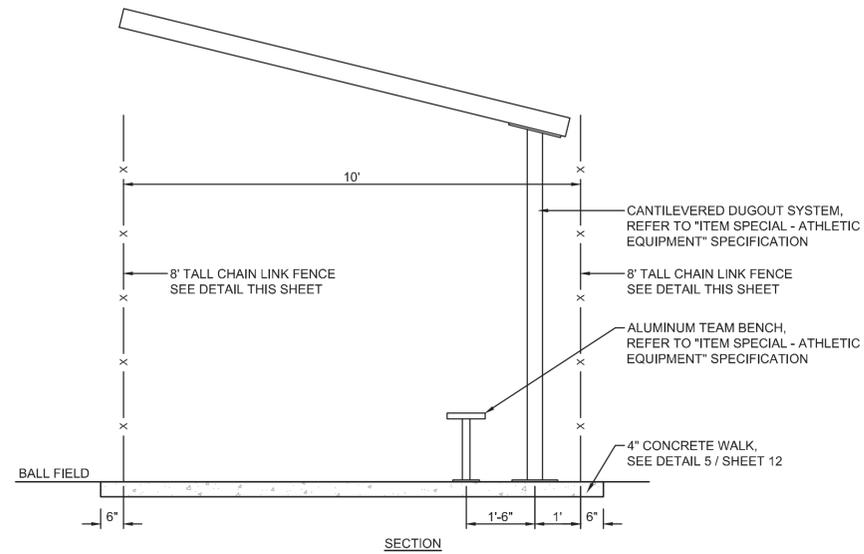
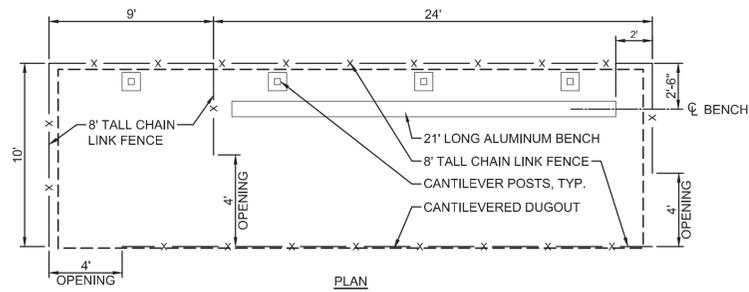
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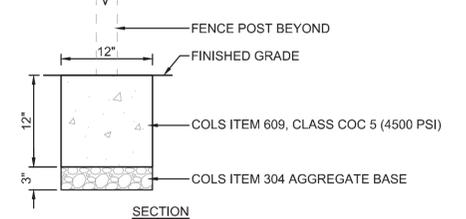
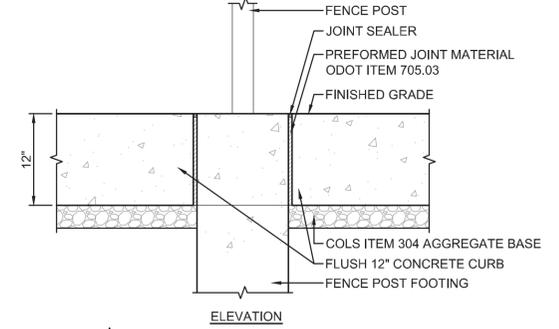
- NOTES:
1. INSTALL FENCE MESH TO PLAY FIELD SIDE.
 2. ALL PIPES TO HAVE WELDED CONNECTIONS.
 3. 4" DIAMETER FOR VERTICAL MEMBERS.
 4. 1-5/8" DIAMETER FOR HORIZONTAL MEMBERS.
 5. ENTIRE BACKSTOP SHALL BE BLACK VINYL COATED (POSTS, RAILS, MESH, ETC.).
 6. REFER TO "ITEM SPECIAL - CHAIN LINK FENCE" SPECIFICATION FOR ADDITIONAL INFORMATION. ITEM IS PER BACKSTOP AND SHALL INCLUDE ALL LABOR, EQUIPMENT, MATERIALS, INCIDENTAL WORK, AND CONSTRUCTION METHODS NECESSARY TO INSTALL BACKSTOP.

1 BASEBALL BACKSTOP
N.T.S.

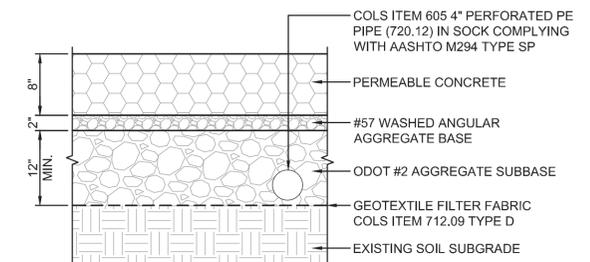


- NOTE:
1. DUGOUT PLAN IS EXAMPLE OF DUGOUT ALONG FIRST BASE LINE. REVERSE LAYOUT FOR DUGOUT ALONG THIRD BASE LINE.

4 BASEBALL DUGOUT
N.T.S.

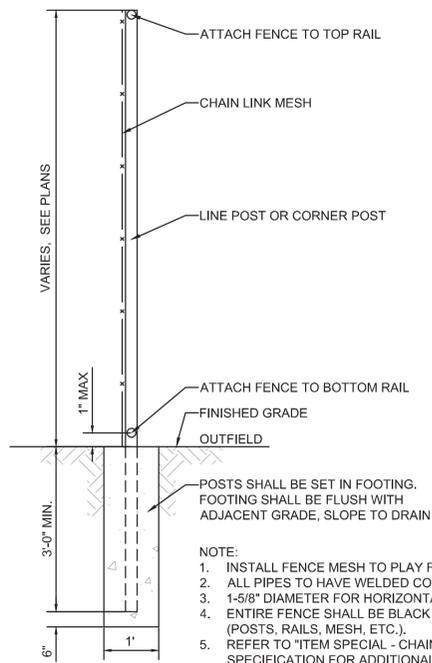


6 BID ALTERNATE: FLUSH 12" CONCRETE CURB, AS PER PLAN
N.T.S.



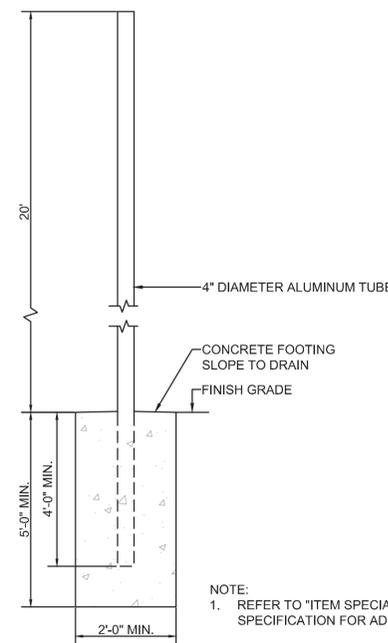
- NOTE:
1. REFER TO "ITEM SPECIAL - PERVIOUS CONCRETE PAVEMENT" SPECIFICATION FOR ADDITIONAL INFORMATION.

7 PERVIOUS CONCRETE PAVEMENT
N.T.S.



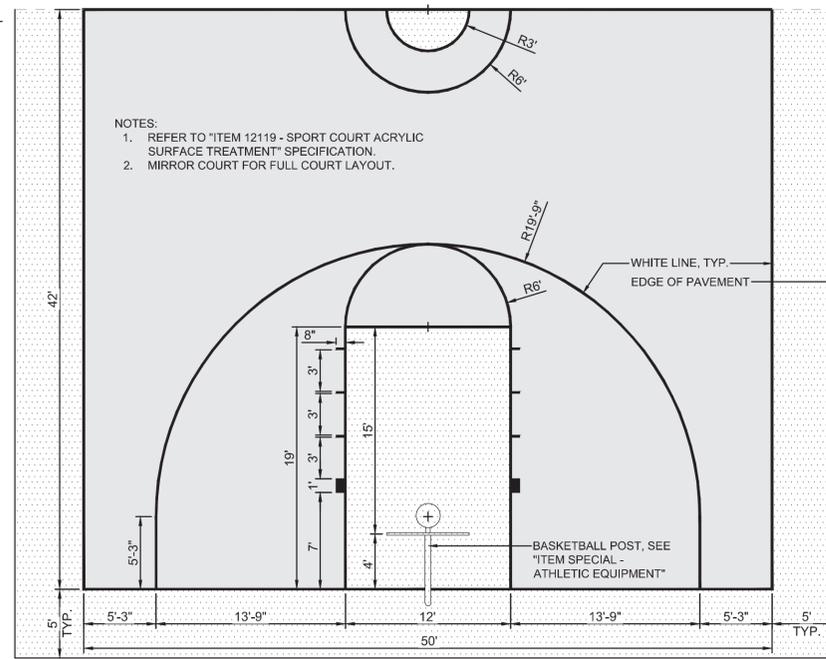
- NOTE:
1. INSTALL FENCE MESH TO PLAY FIELD SIDE.
 2. ALL PIPES TO HAVE WELDED CONNECTIONS.
 3. 1-5/8" DIAMETER FOR HORIZONTAL MEMBERS.
 4. ENTIRE FENCE SHALL BE BLACK VINYL COATED (POSTS, RAILS, MESH, ETC.).
 5. REFER TO "ITEM SPECIAL - CHAIN LINK FENCE" SPECIFICATION FOR ADDITIONAL INFORMATION.

2 CHAIN LINK FENCE
N.T.S.



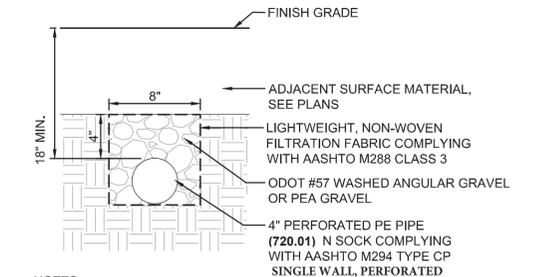
- NOTE:
1. REFER TO "ITEM SPECIAL - ATHLETIC EQUIPMENT" SPECIFICATION FOR ADDITIONAL INFORMATION.

3 FOUL POLE
N.T.S.



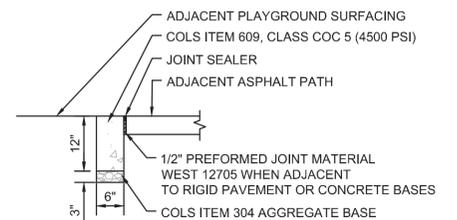
- NOTES:
1. REFER TO "ITEM 12119 - SPORT COURT ACRYLIC SURFACE TREATMENT" SPECIFICATION.
 2. MIRROR COURT FOR FULL COURT LAYOUT.

5 BASKETBALL COURT LAYOUT
N.T.S.



- NOTES:
1. INSTALLATION SHALL COMPLY WITH CITY OF COLS ITEM 605.
 2. SEE PLANS AND APPROPRIATE DETAIL FOR FINISH TREATMENT.
 3. DRAIN SHALL BE SLOPED TO DRAIN AT A MINIMUM OF 0.50%.
 4. PAYMENT SHALL INCLUDE THE UNDERDRAIN PIPING, FILTER SOCK, STONE, FABRIC, AND ALL TOOLS, LABOR, MATERIALS, AND INCIDENTALS NECESSARY TO INSTALL A COMPLETE SYSTEM.

8 4" UNDERDRAIN, AS PER PLAN
N.T.S.



9 FLUSH 6" CONCRETE CURB, AS PER PLAN
N.T.S.

REVISIONS	
MARK	DATE

PLANS PREPARED BY:

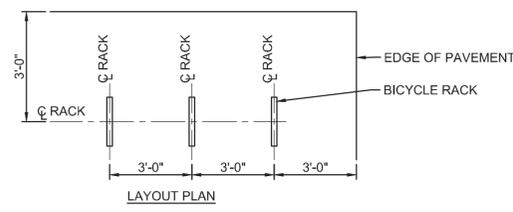
 CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
 www.kleingers.com
 350 Worthington Rd
 Suite 11
 Westerville, OH 43082
 614.882.4311

SCALE:
 AS SHOWN

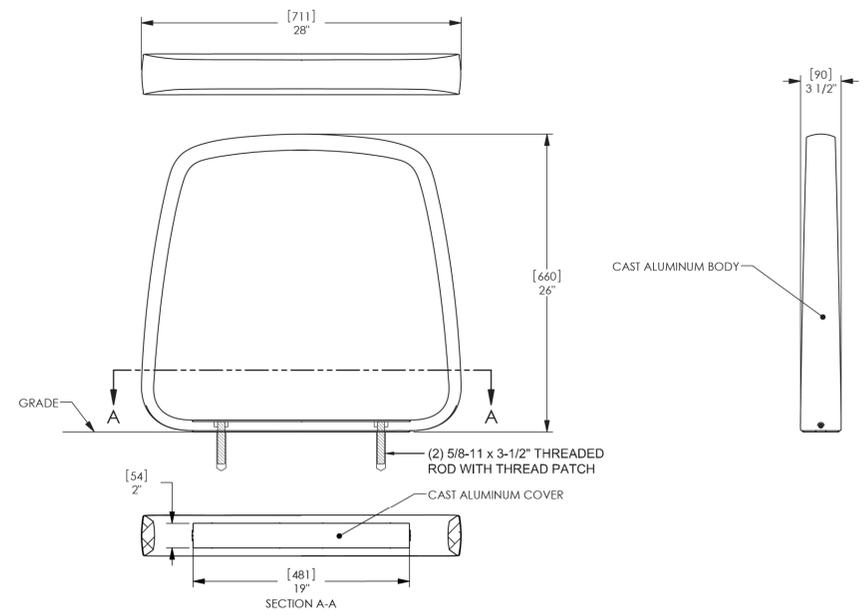
WALNUT RIDGE PARK IMPROVEMENTS

SITE DETAILS

APPROVED
 2024-004



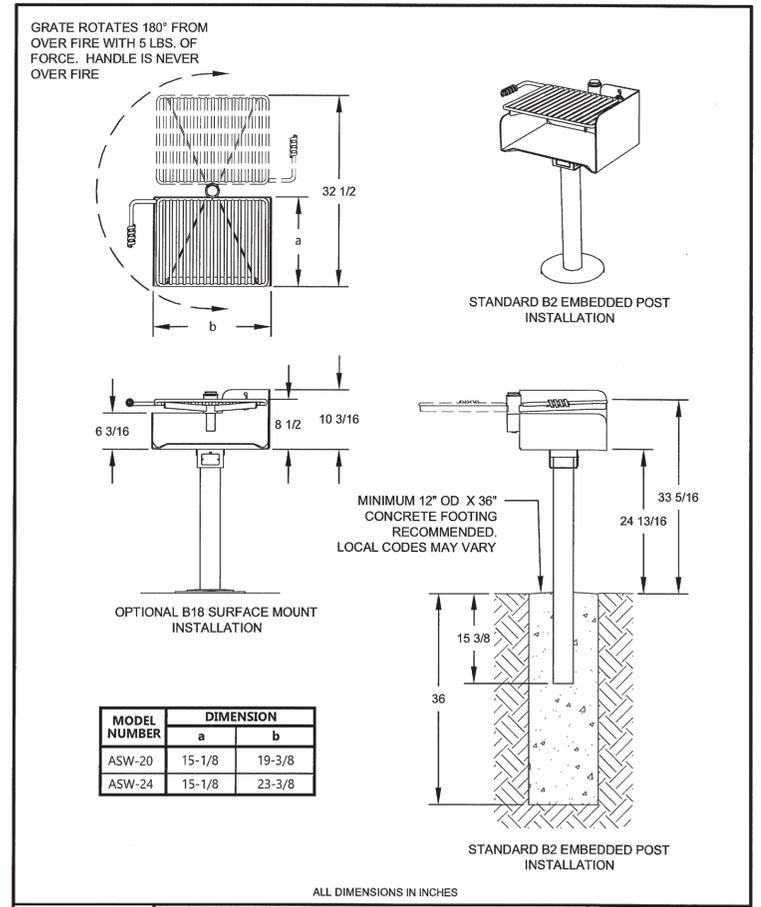
Ride™ Bike Rack, Surface Mount
 Product Drawing Date: 5/7/2010
 www.landscapeforms.com Ph: 800.521.2546



landscapeforms Drawing: F905-01
 Dimensions are in inches [mm]
 U.S. Patent No.: D613,646

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- NOTES:
 1. REFER TO "ITEM SPECIAL - SITE FURNISHINGS" SPECIFICATION FOR ADDITIONAL INFORMATION.
- ① BIKE RACK, AS PER PLAN
 N.T.S.

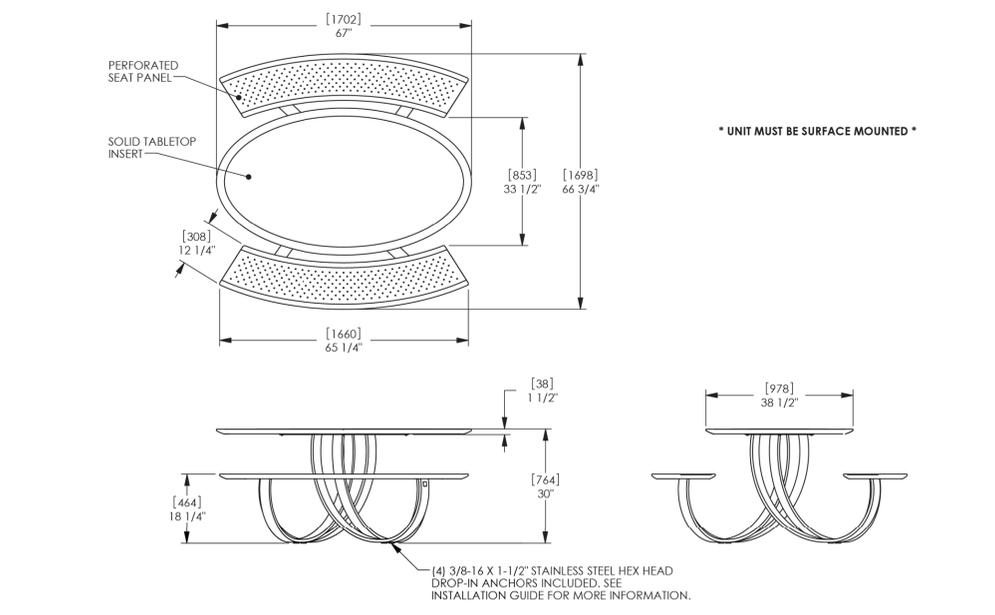


MODEL NUMBER	DIMENSION	
	a	b
ASW-20	15-1/8	19-3/8
ASW-24	15-1/8	23-3/8

Specification Bulletin #SPC-GR-027

- NOTES:
 1. REFER TO "ITEM SPECIAL - SITE FURNISHINGS" SPECIFICATION FOR ADDITIONAL INFORMATION.
- ② GRILL, AS PER PLAN
 N.T.S.

Charlie Picnic Table, 67in, Surface Mount, No Hole
 Product Drawing Date: 10/16/2012
 www.landscapeforms.com Ph: 800.521.2546



landscapeforms Drawing: C1220-01
 Dimensions are in inches [mm]

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- NOTES:
 1. REFER TO "ITEM SPECIAL - SITE FURNISHINGS" SPECIFICATION FOR ADDITIONAL INFORMATION.
- ③ TABLE, AS PER PLAN
 N.T.S.

BOARDWALK NOTES:

SHOP DRAWINGS:
CONTRACTOR SHALL SUBMIT STRUCTURALLY STAMPED / SIGNED SHOP DRAWINGS FOR APPROVAL PRIOR TO CONSTRUCTION.

MATERIALS:
THIS PLAN IS BASED UPON THE FOLLOWING MATERIAL PROPERTIES:

- WOOD:
 - ALL DIMENSIONAL LUMBER SHALL BE ROBINIA (BLACK LOCUST), INCLUDING DECKING (5/4x6), KICK RAIL (2x4), TOP RAIL (2x6) AND BOTTOM RAIL (5/4x4).
 - FRAMING LUMBER SHALL BE PRESSURE TREATED SOUTHERN PINE, INCLUDING BEAMS (2x10), JOISTS (2x10), BLOCKING (2x10), KICK RAIL POST (4x4), AND GUARD RAIL POST (4x4), NOMINAL DIMENSIONS ARE DESCRIBED IN THE PLANS. ACTUAL DIMENSIONS SHALL CONFORM TO STANDARD DRESSED LUMBER. MEMBERS IN CONTACT WITH THE SOIL SHALL BE RATED FOR BELOW GRADE USE.
 - ALL LUMBER SHALL BE GRADE #1 OR SELECT GRADE.
 - STAIN ALL EXPOSED PRESSURE TREATED LUMBER. VERIFY COLOR WITH OWNER'S REPRESENTATIVE.
 - THE CONTRACTOR SHALL PROVIDE CERTIFICATION THAT THE WOODEN COMPONENTS SUPPLIED FOR THE PROJECT MEET OR EXCEED THE SPECIFICATIONS CONTAINED HEREIN.
- FASTENERS AND CONNECTORS: ALL FASTENERS AND CONNECTORS IN CONTACT WITH LUMBER SHALL BE TYPE 304 STAINLESS STEEL OR TYPE 316 STAINLESS STEEL. NO ZINC COATED PERMITTED.
 - FILL SCREW HOLES WITH MATCHING FILLER.
- HELICAL PIERS: ALL HELIX FOUNDATION PIERS SHALL BE 3" O.D. WITH 1/8" WALL THICKNESS. THE NUMBER AND SIZE OF BLADES SHALL BE PER THE INSTALLATION CONTRACTOR SO AS TO ACHIEVE APPROPRIATE INSTALLATION TORQUE AND CAPACITY. ALL PIER COMPONENTS SHALL BE HOT DIP ZINC GALVANIZED PER ASTM 124 OR 153. HELIX PIER INSTALLATION SHOULD BE OBSERVED BY A GEOTECHNICAL ENGINEER TO VERIFY INSTALLATION TORQUE AND MINIMUM DEPTHS. PROVIDE A MINIMUM OF 72 HOURS NOTICE PRIOR TO INSTALLATION WORK. THE LOADS SHOWN ON THE PLAN ARE MINIMUM DESIGN LOADS. THE MANUFACTURER'S RECOMMENDATIONS SHOULD BE FOLLOWED REGARDING THE TORQUE AND BEARING CAPACITY RELATIONSHIP FOR THE PARTICULAR HELIX PIER SELECTED.
- FRAMING: ALL FRAMING SHALL BE IN ACCORDANCE WITH THE PROVISIONS OF APPLICABLE BUILDING CODE. PROVIDE SOLID BLOCKINGS TO TRANSMIT LOADS TO THE FOUNDATION AS NECESSARY. REFER TO THE CODE FOR ADDITIONAL REQUIREMENTS.
- LIMITATIONS: THIS PLAN IS ONLY A FOUNDATION AND FRAMING DESIGN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY AND COORDINATE ALL DIMENSIONS PRIOR TO CONSTRUCTION. THIS PLAN IS BASED ON THE ABOVE REFERENCED SPECIFICATIONS. ANY DISCREPANCIES OR CHANGES SHALL BROUGHT TO THE ATTENTION OF THE OWNER'S REPRESENTATIVE.
- CONCRETE SHALL CONFORM TO SMSC 511:
 - CLASS COC 1, F'C = 4000 PSI MIN (ABUTMENTS).
 - MEDIUM-TO-FINE-TEXTURED BROOM FINISH: DRAW A SOFT-BRISTLE BROOM ACROSS FLOAT-FINISHED CONCRETE SURFACE, PERPENDICULAR TO LINE OF TRAFFIC, TO PROVIDE A UNIFORM, FINE-LINE TEXTURE.
- ALL STRUCTURAL STEEL SHALL BE HOT DIPPED GALVANIZED AND CONFORM TO GMSC 513, 711.01, AND 711.02.
- GALVANIZED REINFORCING STEEL PER ASTM A767 OR A1094. REINFORCING STEEL SHALL CONFORM TO CITY OF COLUMBUS CONSTRUCTION SPECIFICATIONS ITEM 509, ASTM A615, A616, OR A617, GRADE 60 (EPOXY COATED).

DESIGN LOADING:

- LIVE LOAD = 90 PSF MAX. (ENCOMPASSES PEDESTRIAN LOAD, GOLF CART/JOHN DEER GATOR OR EQUIVALENT 2500 LBS UTILITY VEHICLE LOAD, AND SNOW LOAD)
- WIND LOAD = 30 PSF
- SEISMIC ZONE 1
- RAILING LOADS PER MINIMUM ASCE 7-16 CRITERIA (500 LBS OR 50 LB/FT LINE LOAD)

FOUNDATION BEARING PRESSURE:

THE DESIGN FOUNDATION BEARING PRESSURE IS 4000 PSF. IF UNSUITABLE BEARING MATERIAL IS ENCOUNTERED AT THE BOTTOM OF THE SPREAD FOOTING ELEVATIONS, THE FOUNDATION SHALL BE WIDENED AND/OR DEEPENED TO ATTAIN THE MINIMUM REQUIRED BEARING PRESSURE. ALTERNATELY, THE POOR SOILS MAY BE OVER EXCAVATED, AND REPLACED WITH SUITABLE COMPACTED GRANULAR MATERIAL. THE SUITABILITY OF THE BEARING MATERIAL SHALL BE VERIFIED BY AN ON-SITE REGISTERED SOILS ENGINEER EMPLOYED BY THE CITY. ANY CHANGES IN THE FOUNDATION MUST BE APPROVED BY THE ENGINEER.

STAINLESS STEEL CABLE RAILING

STAINLESS STEEL CABLE RAILING SYSTEM SHALL BE PER THE CABLE CONNECTION, ULTRA-TEC CABLE RAILING SYSTEMS (WWW.ULTRA-TECHRAILINGS.COM) OR STRUCTURAL EQUIVALENT. STAINLESS STEEL RAILING SHALL BE 1 X 19 TYPE 316 STAINLESS STEEL STRAND, LEFT-HAND LAY, PER DIMENSIONAL PROPERTIES CONTAINED IN MIL-DTL-87161. STAINLESS STEEL CABLE SHALL BE 3/16" DIAMETER AND HAVE A MILL FINISH. STAINLESS STEEL CABLE SHALL CONFORM TO ASTM A276 AND A479, SAE/AMS QQ-S-763, TYPE 316. CABLES SHALL BE TENSIONED TO A MINIMUM OF 225 POUNDS EACH IN SEQUENCE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. ALL POSTS SHALL BE SPACED AT 3'-0" MAXIMUM. THE CONTRACTOR SHALL TAKE DETAILED FIELD MEASUREMENTS TO VERIFY THE LENGTH AND GEOMETRY OF THE BRIDGE TO DETERMINE THE PROPOSED POST LAYOUT. ENSURE CABLES ARE CLEAN AND WITHOUT KINKS OR SAGS. SWAGELESS HARDWARE SHALL BE USED WHEREVER PRACTICAL AND SHALL BE SUBSTANTIALLY CONCEALED INSIDE END POSTS WHERE PRACTICAL. CABLE GROMMETS SHALL BE INSTALLED TO ALL END POSTS, INTERMEDIATE POSTS, AND CABLE BRACES BORED FOR CABLES FOR PREVENTION OF ABRASION. STAINLESS STEEL CABLES MAY NOT BE INSTALLED UNTIL AFTER INSTALLATION OF TOP RAILING COMPONENTS.

ITEM 509 - CLASS COC 1 CONCRETE, ABUTMENTS

THIS ITEM INCLUDES ALL NECESSARY MATERIAL, LABOR, AND WORK ASSOCIATED WITH THE COMPLETE CONSTRUCTION OF THE REINFORCED CONCRETE ABUTMENTS INCLUDING FOOTING, REINFORCED STEEL, AND ALL OTHER MISCELLANEOUS COMPONENTS UNLESS OTHERWISE PAID FOR SEPARATELY. THIS ITEM SHALL INCLUDE ALL WORK NECESSARY TO CONSTRUCT AND FORM THE CONCRETE ABUTMENTS.

ITEM SPECIAL - HELICAL PIERS, AS PER PLAN

THIS ITEM INCLUDES ALL NECESSARY MATERIAL, LABOR, AND WORK ASSOCIATED WITH THE COMPLETE CONSTRUCTION OF THE OF HELICAL PIERS AS DETAILED HEREIN.

ITEM SPECIAL - BOARDWALK DECK, AS PER PLAN

THIS ITEM INCLUDES ALL NECESSARY MATERIAL, LABOR, AND WORK ASSOCIATED WITH THE COMPLETE CONSTRUCTION OF THE CURVED TIMBER BOARDWALK AS DETAILED HEREIN. THIS ITEM INCLUDES ALL TIMBER FRAMING (INCLUDING ALL BEAMS, JOISTS, AND BLOCKING), CONNECTIONS, DECKING, SEALER, AND ALL OTHER MISCELLANEOUS COMPONENTS UNLESS OTHERWISE PAID FOR SEPARATELY.

ITEM SPECIAL - BOARDWALK KICK RAIL, AS PER PLAN

THIS ITEM INCLUDES ALL NECESSARY MATERIAL, LABOR, AND WORK ASSOCIATED WITH THE COMPLETE CONSTRUCTION OF THE TIMBER KICK RAIL AS DETAILED HEREIN. THIS ITEM INCLUDES ALL TIMBER FRAMING (INCLUDING ALL KICK RAIL POSTS AND RAIL), CONNECTIONS, AND ALL OTHER MISCELLANEOUS COMPONENTS UNLESS OTHERWISE PAID FOR SEPARATELY.

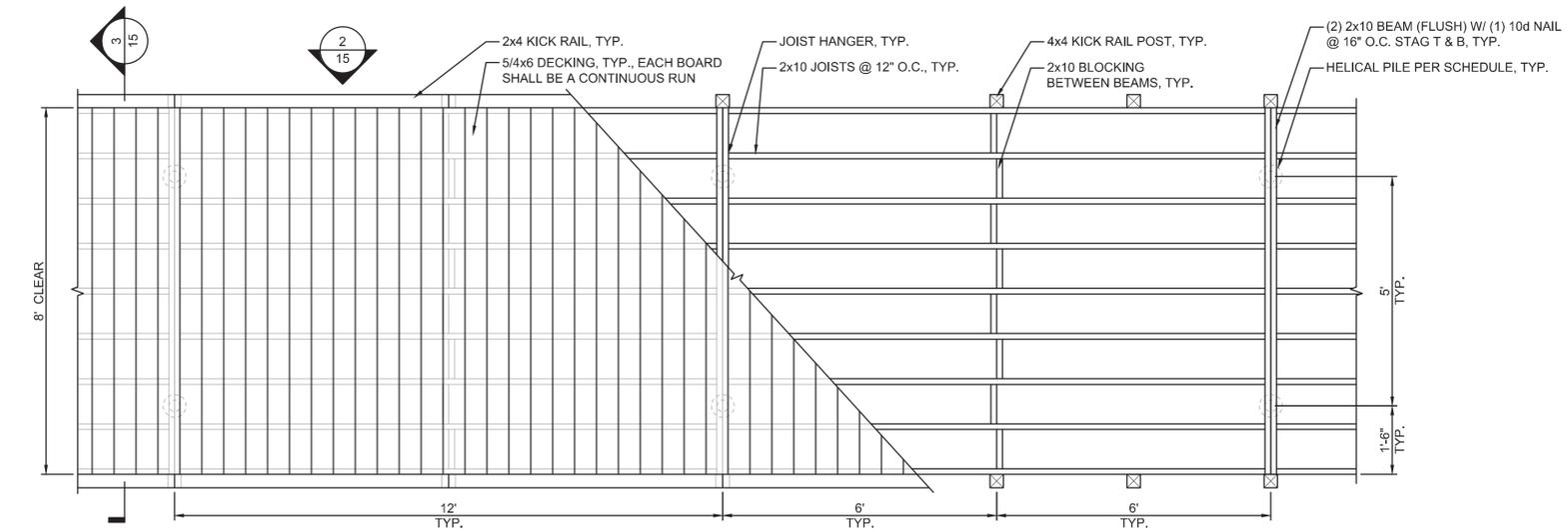
ITEM SPECIAL - BOARDWALK GUARD RAIL, AS PER PLAN

THIS ITEM INCLUDES ALL NECESSARY MATERIAL, LABOR, AND WORK ASSOCIATED WITH THE CONSTRUCTION OF THE GUARD RAIL INCLUDING TIMBER POSTS, CAPS, RAILS, AND CABLE RAILING SYSTEM (INCLUDING ALL CABLE RAILING AND ASSOCIATED COMPONENTS, GROMMETS, INSERTS, AND SWAGELESS HARDWARE).

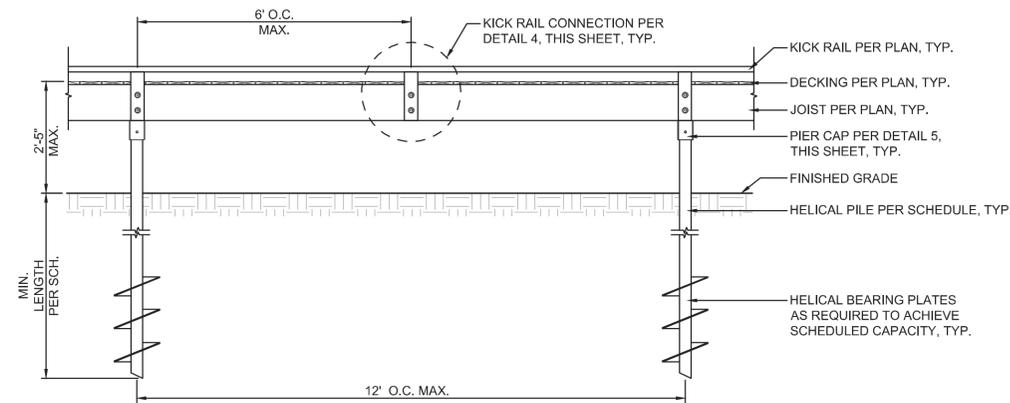
PILE TYPE	ALLOWABLE LOAD	MINIMUM LENGTH*	MINIMUM PIER DIMENSIONS	OTHER NOTES
A	4 KIPS (MAX.)	10'	3' O.D., 1/8" WALL THICKNESS	HOT-DIP ZINC GALVANIZED (ASTM A123)

INSTALLATION TORQUE SHALL BE MONITORED THROUGHOUT HELIX PIER ADVANCEMENT. ALL HELIX PIER FOUNDATIONS SHALL BE ADVANCED UNTIL THE INSTALLATION TORQUE MEETS OR EXCEEDS THAT WHICH CORRESPONDS TO THE RECOMMENDED ALLOWABLE LOAD TIMES F.S. = 2.0. SEE GENERAL NOTES FOR MORE INFORMATION.

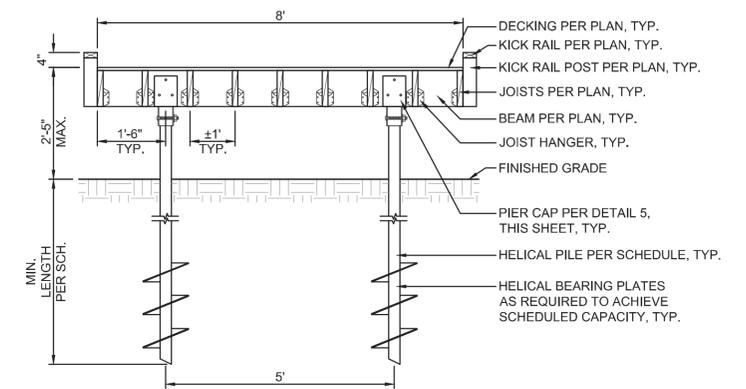
*MIN. DISTANCE BETWEEN GROUND SURFACE AND UPPERMOST HELICAL BEARING PLATE



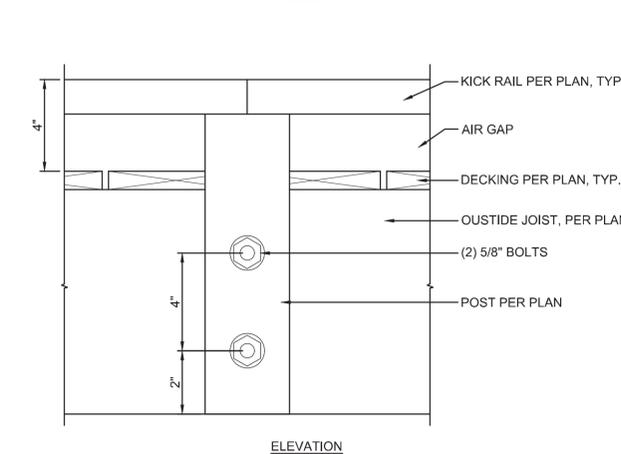
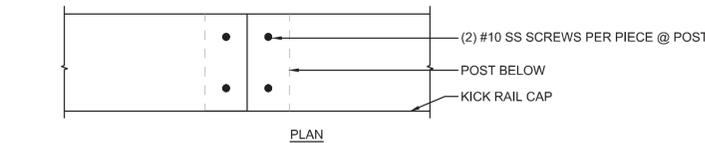
1 BOARDWALK - PLAN @ KICKRAIL
N.T.S.



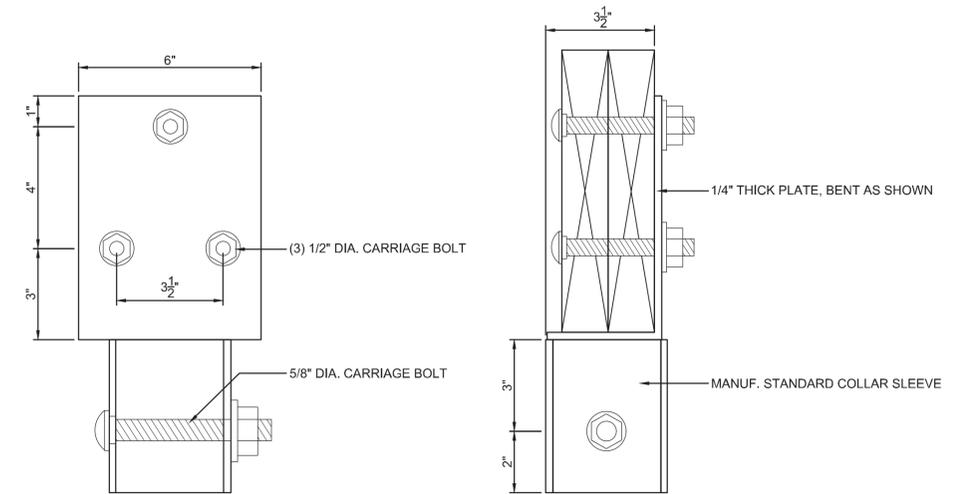
2 BOARDWALK - ELEVATION @ KICKRAIL
N.T.S.



3 BOARDWALK - SECTION @ KICKRAIL
N.T.S.



4 KICK RAIL CONNECTION
N.T.S.



5 PIER CAP
N.T.S.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:
THE KLEINGERS GROUP
CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
www.kleingers.com
350 Worthington Rd Suite 11
Westerville, OH 43082
614.882.4311

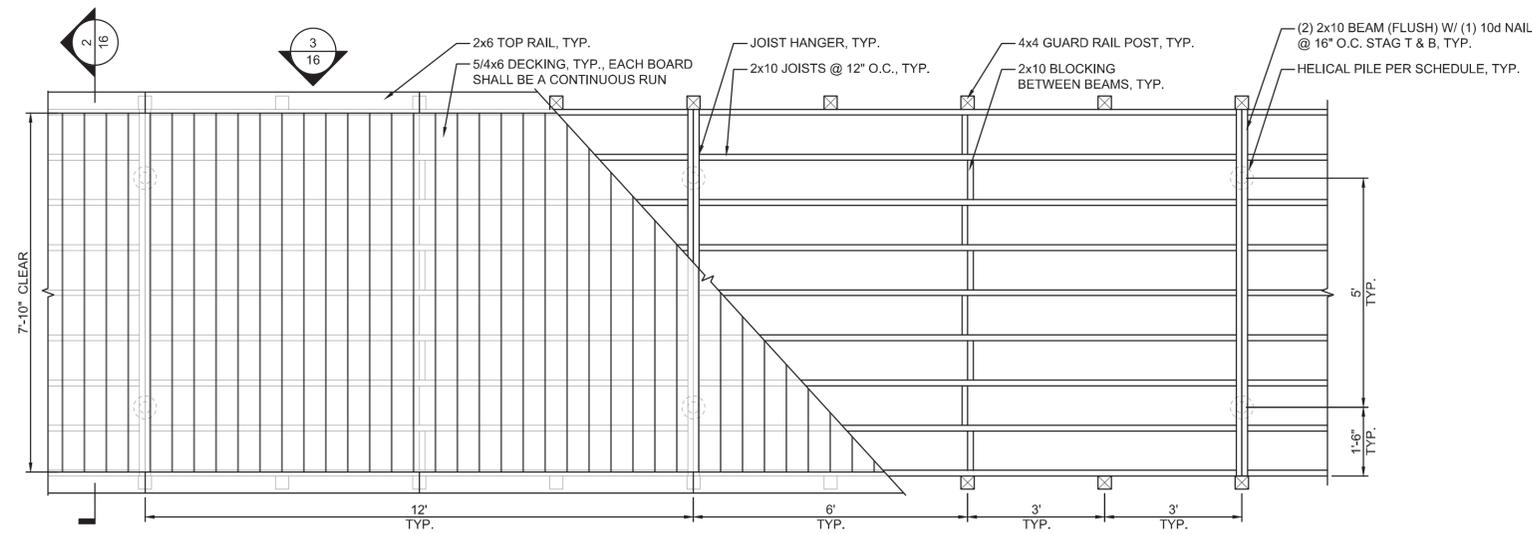
SCALE:
AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

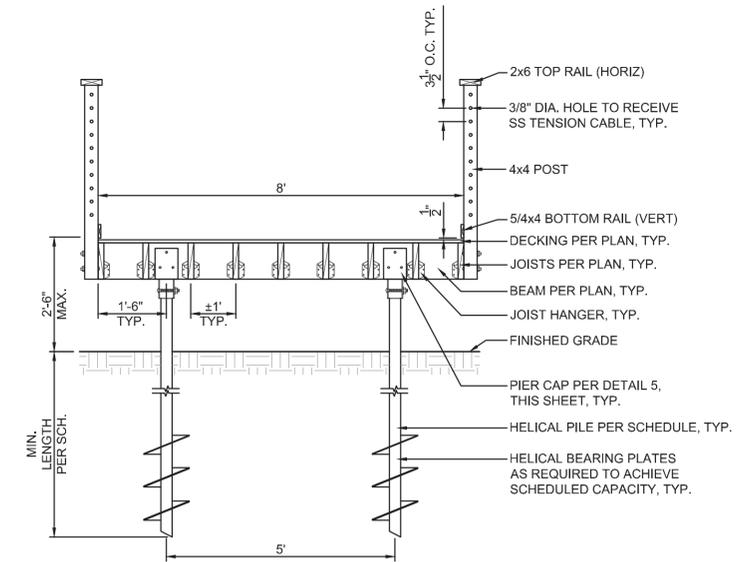
SITE DETAILS

APPROVED
2024-004

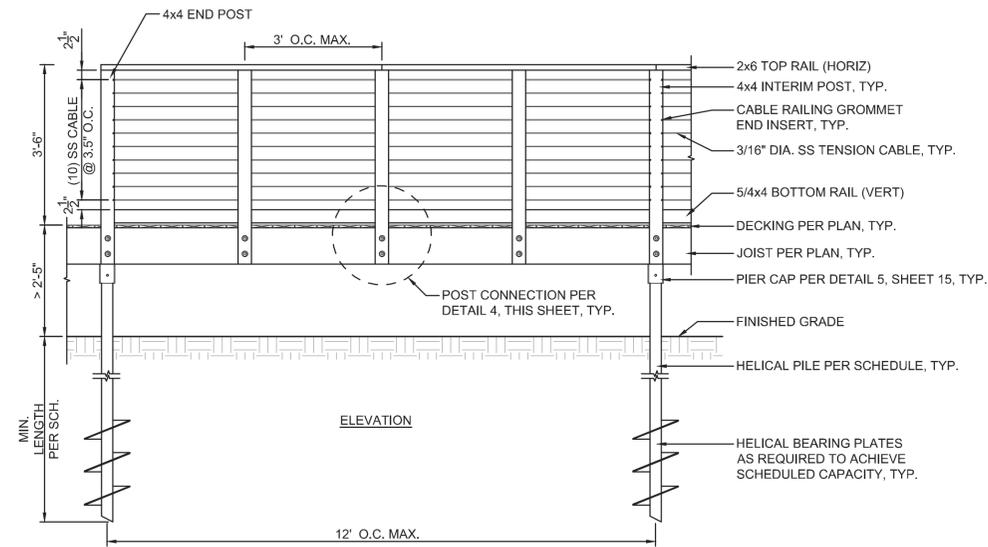
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41



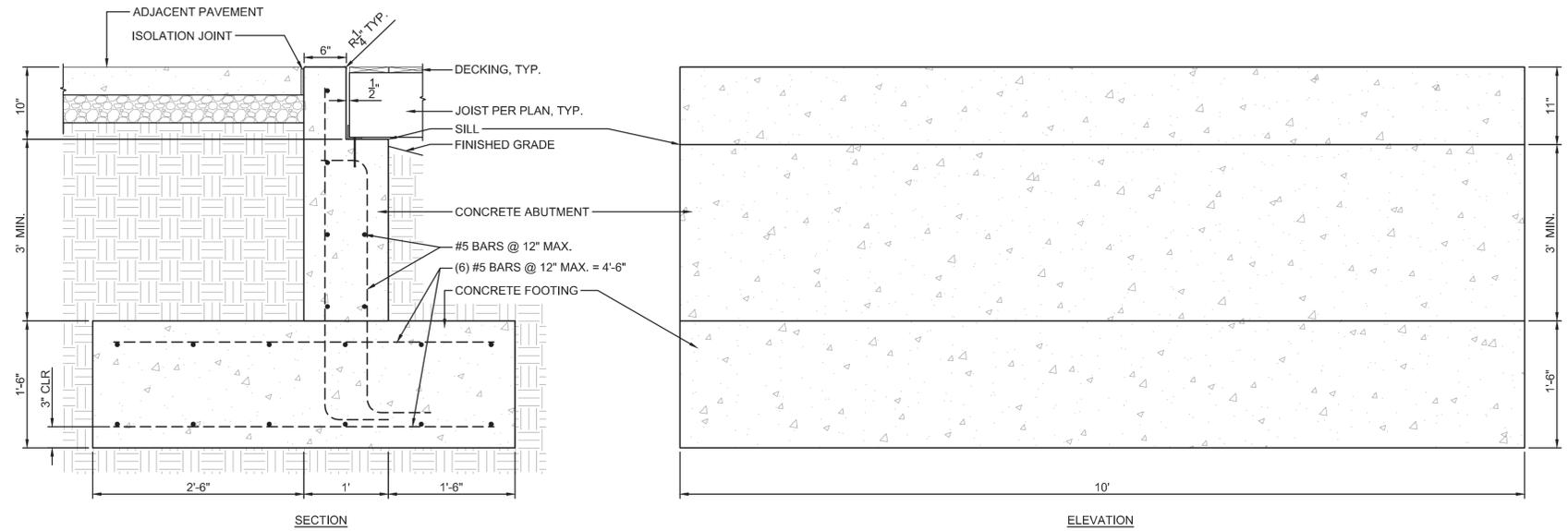
1 BOARDWALK - PLAN @ GUARDRAIL
N.T.S.



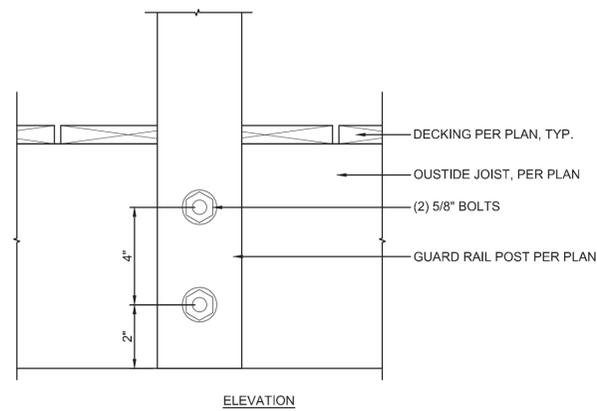
3 BOARDWALK - SECTION @ GUARD RAIL
N.T.S.



3 BOARDWALK - ELEVATION @ GUARD RAIL
N.T.S.



5 CONCRETE ABUTMENT @ BOARDWALK END
N.T.S.



4 GUARD RAIL CONNECTION
N.T.S.

REVISIONS	
MARK	DATE

PLANS PREPARED BY:

 CIVIL ENGINEERING
 SURVEYING
 LANDSCAPE
 ARCHITECTURE
 www.kleingers.com
 350 Worthington Rd
 Suite 11
 Westerville, OH 43082
 614.882.4311

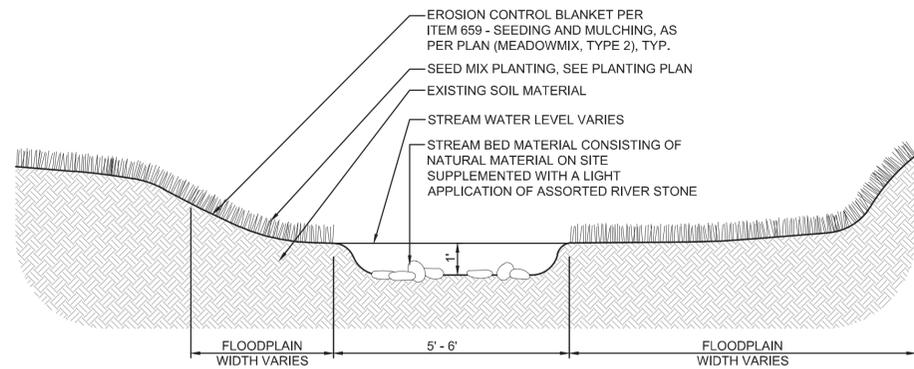
SCALE:
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WALNUT RIDGE PARK IMPROVEMENTS

SITE DETAILS

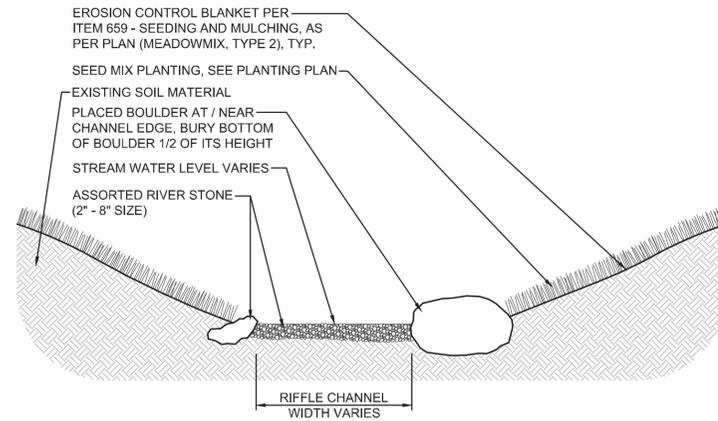
APPROVED
 2024-004

16
 41



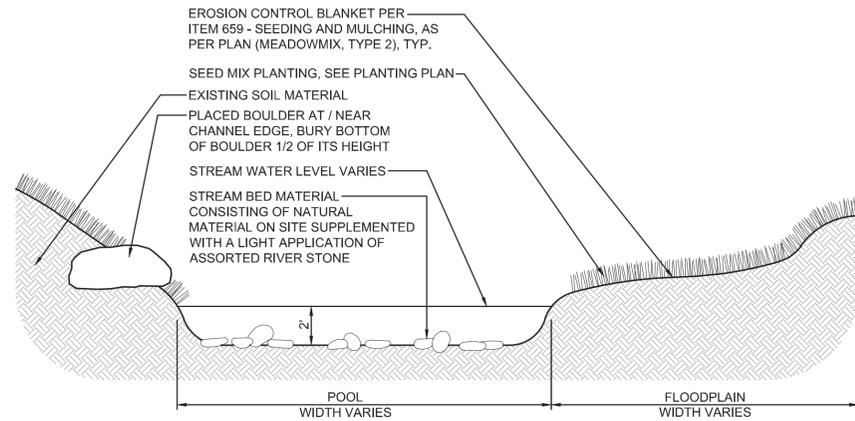
- NOTES:
1. NEEDED IF NATIVE STREAM BOTTOM MATERIAL INADEQUATE. ASSORTED 2"-8" RIVER STONE SHALL BE APPLIED, IF NECESSARY.
 2. STREAM CHANNEL WIDTH 5'-6".
 3. FLOODPLAIN WIDTH MINIMUM OF 3 TIMES CHANNEL WIDTH.

1 TYPICAL GLIDE / RUN DETAIL
N.T.S.



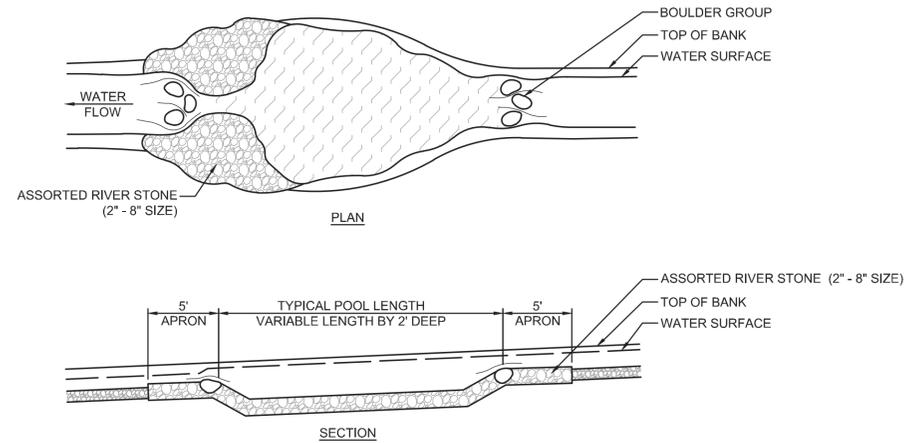
- NOTES:
1. RIFFLE CHANNEL WIDTH SHALL BE SLIGHTLY NARROWED USING RIVERS TONE, COMPARED TO RUN / GLIDE SEGMENTS.
 2. BOULDERS SHALL BE SPORADICALLY PLACED ALONG RIFFLE EDGE. LOCATIONS SHALL BE APPROVED BY OWNER'S REPRESENTATIVE IN FIELD.

2 TYPICAL RIFFLE DETAIL
N.T.S.

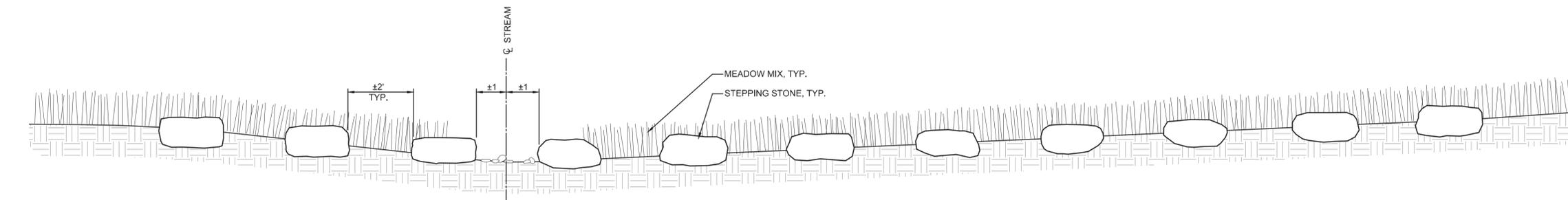


- NOTES:
1. BOULDERS SHALL BE SPORADICALLY INSTALLED ALONG / NEAR POOL EDGE.
 2. STREAM POOL WIDTH 8'-10' MINIMUM.

3 TYPICAL POOL DETAIL
N.T.S.



4 TYPICAL RIFFLE / POOL DETAIL
N.T.S.



- NOTES:
1. STEPPING STONES SHALL BE FURNISHED BY OWNER FROM MAINTENANCE YARD.
 2. SET STONES SO THAT TOP OF STONE IS RELATIVELY LEVEL.
 3. LOCATE STEPPING STONES IN THE FIELD AND GET APPROVAL FROM OWNER'S REPRESENTATIVE PRIOR TO FINAL PLACEMENT.

6 STEPPING STONES
N.T.S.



CONTRACTOR SHALL PLACE LARGE SALVAGE BOULDERS ALONG THE STREAM EDGES. COORDINATE WITH OWNER'S REPRESENTATIVE FOR FINAL LOCATIONS.



STREAM SHALL HAVE A MEANDERING FLOW



GOOD OVERALL STREAM CHARACTER REPRESENTING RIFFLE, RUN, AND POOL

5 PROPOSED STREAM CHARACTER IMAGES
N.T.S.

REVISIONS	
MARK	DATE

PLANS PREPARED BY:

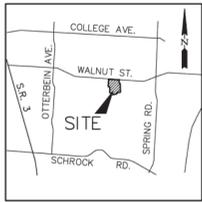
 CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
 www.kleingers.com
 350 Worthington Rd Suite 111
 Westerville, OH 43082
 614.682.4311

SCALE:
 AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

SITE DETAILS

APPROVED
 2024-004



LAT: 40°07'07"N / LONG: 82°54'40"W
VICINITY MAP
 (NOT TO SCALE)

SURVEY NOTES

- 1) SURVEY COORDINATE SYSTEM REFERENCED TO STATE PLANE GRID, OHIO SOUTH ZONE, PER AN OHIO RTN SURVEY (NAD83, 2011 ADJUSTMENT, EPOCH 2010.0, US SURVEY FEET). ELEVATIONS REFERENCED TO NAVD '88 DATUM.
- 2) LOCATION OF UNDERGROUND UTILITIES SHOWN HEREON BASED ON FIELD EVIDENCE AND RECORD PLAN INFORMATION. ACCURACY UNCERTAIN. OTHER UTILITIES MAY EXIST WHICH ARE NOT SHOWN.
- 3) FLOOD ZONE LOCATIONS IMPORTED FROM FRANKLIN COUNTY AUDITOR GIS. AREA FALLS WITHIN ZONE A AND WITHIN 1% ANNUAL CHANGE FLOOD AREA ACCORDING TO FEMA FIRM PANEL 39049C0181K (DATED 6/17/2008).

HORIZONTAL CONTROL

HORIZONTAL DATUM: STATE PLANE
 OHIO SOUTH ZONE
 NAD83(2023), US SURVEY FEET

- CONTROL POINT 440: 8" MAG HUB
 N: 772142.14 E: 1853776.15
- CONTROL POINT 3000: 8" MAG HUB
 N: 771896.86 E: 1853770.30
- CONTROL POINT 3089: 8" MAG HUB
 N: 772251.96 E: 1853555.40
- CONTROL POINT 3979: 8" MAG HUB
 N: 772348.49 E: 1853356.92
- CONTROL POINT 4269: 8" MAG HUB
 N: 771702.07 E: 1853826.57
- CONTROL POINT 4270: 8" MAG HUB
 N: 771739.22 E: 1853514.77
- CONTROL POINT 4533: 8" MAG HUB
 N: 771676.03 E: 1853400.28
- CONTROL POINT 4665: 8" MAG HUB
 N: 772247.04 E: 1853811.36
- CONTROL POINT 4666: 8" MAG HUB
 N: 772218.39 E: 1853810.93
- CONTROL POINT 4667: 8" MAG HUB
 N: 772182.37 E: 1853805.80
- CONTROL POINT 4727: 8" MAG HUB
 N: 771936.36 E: 1853802.45

BENCH MARKS

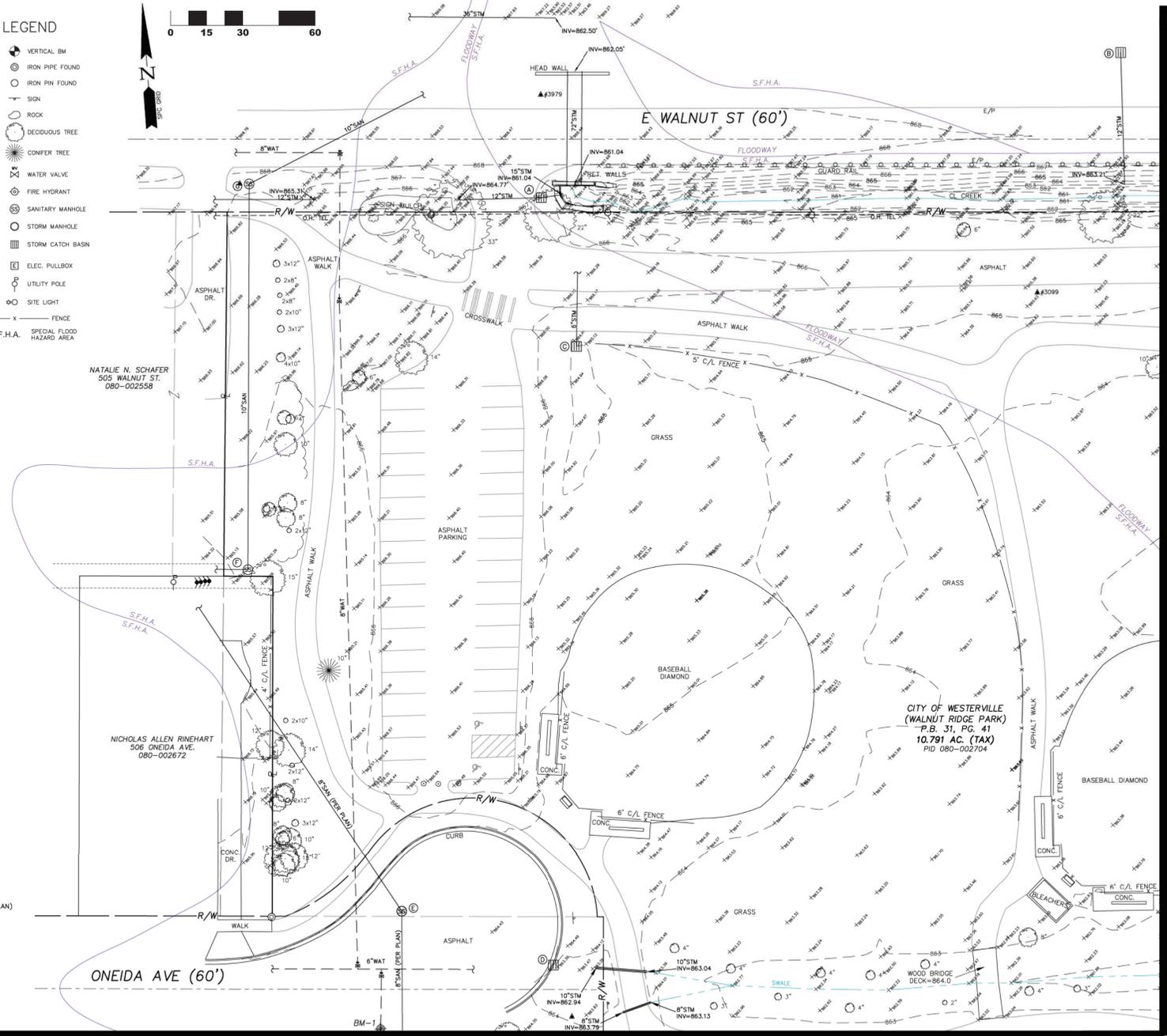
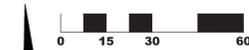
- DATUM: NAVD 88
- SITE BM No. 1: AN "X" CUT ON TOP OF THE SOUTH FLANGE BOLT FOR THE FIRE HYDRANT LOCATED ON THE SOUTH SIDE AND AT THE EAST END OF ONEIDA AVENUE, IN FRONT OF HOUSE #815.
 ELEV=866.78
 - SITE BM No. 2: A BENCH TIE SET IN THE WEST SIDE OF A 36" WILLOW TREE, BETWEEN THE BIKE PATH AND WALNUT RIDGE RUN.
 ELEV=864.52
 - SITE BM No. 3: A SQUARE SET ON THE NORTHEAST CORNER THE CURB INLET LOCATED ON THE EAST SIDE OF SIOUX DRIVE, 80' SOUTH OF THE PATH TO THE PLAYGROUND.
 ELEV=864.97

SEWER INVERTS

- ① CATCH BASIN
 INLET EL.=866.23
 INV. 12" WEST EL.=863.03
 INV. 15" EAST EL.=862.91
- ② CURB INLET
 INLET EL.=867.23
 INV. 12" SOUTH EL.=864.83
- ③ CATCH BASIN
 INLET EL.=864.98
 INV. 6" NORTH EL.=863.17
 *CONNECTION NOT FOUND
- ④ CURB INLET
 INLET EL.=863.81
 OUTLET EAST EL.=863.06
 SUMP EL.=861.91
 *FULL OF MUD
- ⑤ SANITARY MANHOLE
 T/C EL.=864.68
 INV. 8" SOUTH EL.=857.47 (PER PLAN)
 INV. 8" NORTHWEST EL.=857.47 (PER PLAN)
- ⑥ SANITARY MANHOLE
 T/C EL.=865.24
 *FULL OF WATER
- ⑦ SANITARY MANHOLE
 T/C EL.=867.68
 INV. 10" NORTHEAST EL.=857.24
 INV. 10" SOUTH EL.=857.04

LEGEND

- VERTICAL BM
- IRON PIPE FOUND
- IRON PIN FOUND
- SIGN
- ROCK
- DECIDUOUS TREE
- CONIFER TREE
- WATER VALVE
- FIRE HYDRANT
- SANITARY MANHOLE
- STORM MANHOLE
- STORM CATCH BASIN
- ELEC. PULLBOX
- UTILITY POLE
- SITE LIGHT
- FENCE
- S.F.H.A. SPECIAL FLOOD HAZARD AREA



MATCH LINE - SEE SHEET 3/4

MATCH LINE - SEE SHEET 2/4

REVISIONS	SCALE: 1"=30'
2/5/24: EXPANDED LIMITS	PROJ. NO.: 24-317
	DATE OF SURVEY: 12/6/2024
	CLIENT: KLEINGERS GROUP
	CLIENT P.O.:
	F.B./P.C.: 47/35

PRO BOUNDARY
 LAND SURVEYORS

BY: *Timothy P. Staudt*
 8850 COMMERCE LOOP DR
 COLUMBUS, OH 43240
 (614) 899-2209

TOPOGRAPHIC SURVEY
WALNUT RIDGE PARK
 CITY OF WESTERVILLE, OHIO

SHEET
 1 / 4

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:
THE KLEINGERS GROUP

CIVIL ENGINEERING
 SURVEYING
 LANDSCAPE
 ARCHITECTURE
 www.kleingers.com
 350 Worthington Rd
 Suite 19
 Westerville, OH 43082
 614.882.4311

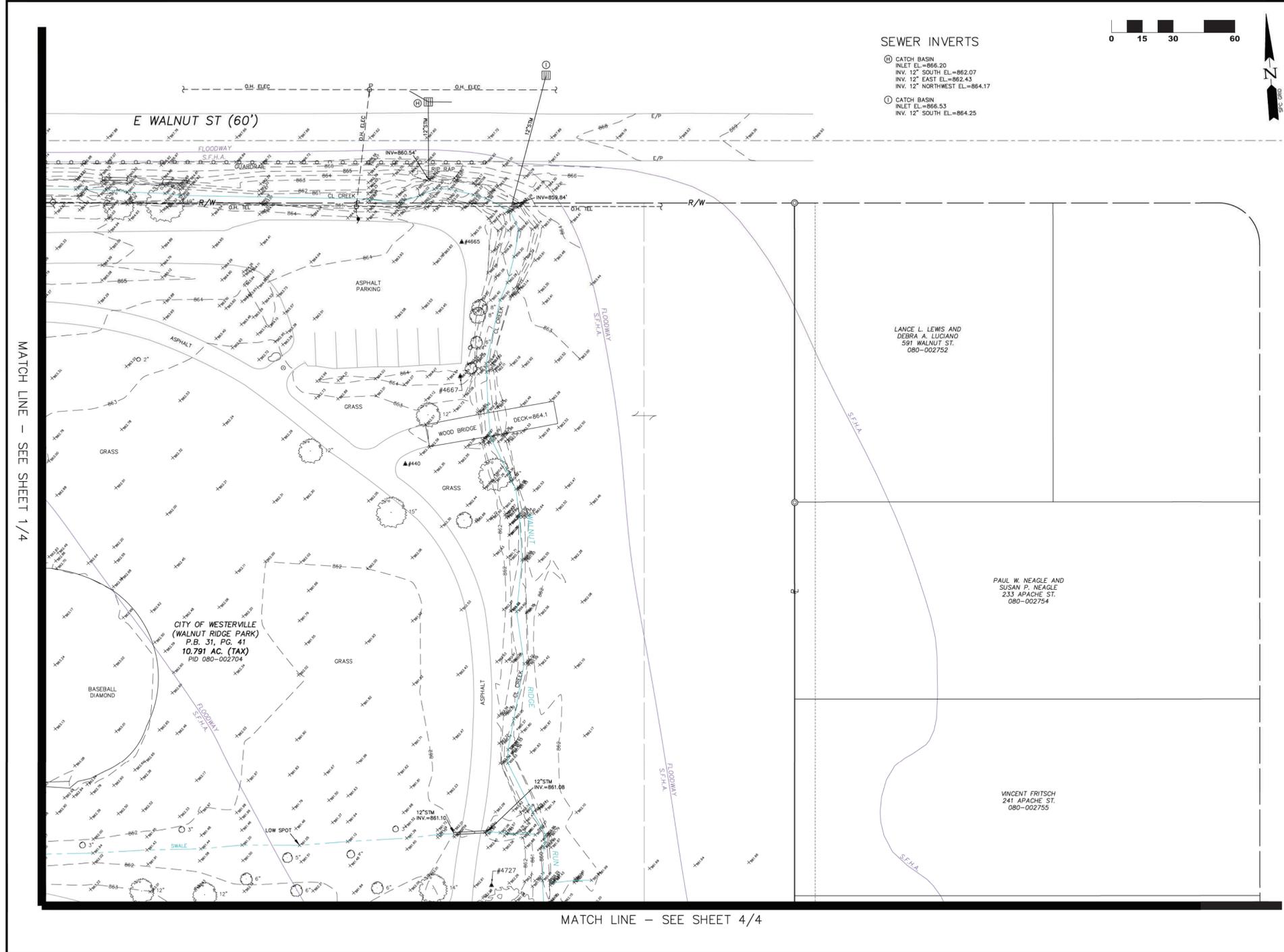
SCALE:
AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

TOPOGRAPHIC SURVEY - NORTHWEST

APPROVED
 2024-004

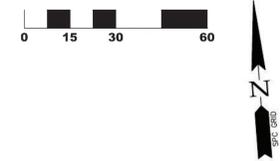
18
 41



SEWER INVERTS

④ CATCH BASIN
 INLET EL.=866.20
 INV. 12" SOUTH EL.=862.07
 INV. 12" EAST EL.=862.43
 INV. 12" NORTHWEST EL.=864.17

① CATCH BASIN
 INLET EL.=866.53
 INV. 12" SOUTH EL.=864.25



MATCH LINE - SEE SHEET 1/4

MATCH LINE - SEE SHEET 4/4

REVISIONS 2/5/24: EXPANDED LIMITS	SCALE: 1"=30' PROJ. NO.: 24-317 DATE OF SURVEY: 12/6/2024 CLIENT: KLEINGERS GROUP CLIENT P.O.: F.B./P.C.: 47/35
	
BY: <i>Timothy P. Stadt</i> 8850 COMMERCE LOOP DR COLUMBUS, OH 43240 (614) 899-2209 OHIO PROFESSIONAL SURVEYOR NO. 8723	
TOPOGRAPHIC SURVEY WALNUT RIDGE PARK CITY OF WESTERVILLE, OHIO	
SHEET 2/4	

REVISIONS	
MARK	DESCRIPTION

PLANS PREPARED BY:

 CIVIL ENGINEERING
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 LANDSCAPE
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 350 Worthington Rd
 Suite 11
 Westerville, OH 43082
 614.892.4311

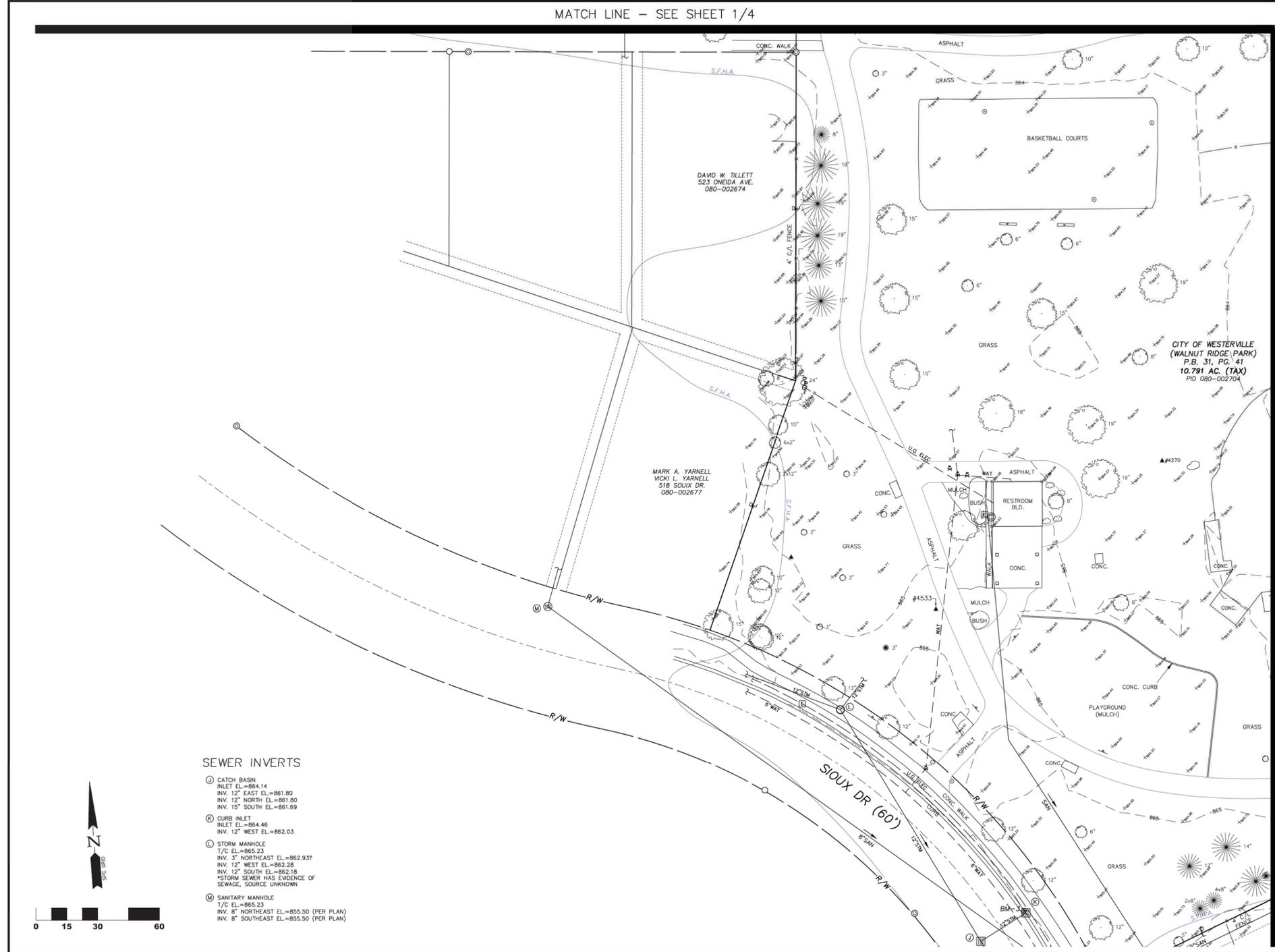
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AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

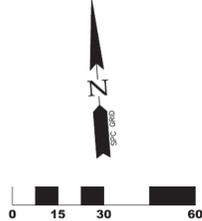
TOPOGRAPHIC SURVEY - NORTHEAST

APPROVED

2024-004



- SEWER INVERTS**
- ⊙ CATCH BASIN
INLET EL.=864.14
INV. 12" EAST EL.=861.80
INV. 12" NORTH EL.=861.80
INV. 15" SOUTH EL.=861.69
 - ⊙ CURB INLET
INLET EL.=864.46
INV. 12" WEST EL.=862.03
 - ⊙ STORM MANHOLE
T/C EL.=865.23
INV. 3" NORTHEAST EL.=862.937
INV. 12" WEST EL.=862.29
INV. 12" SOUTH EL.=862.18
*STORM SEWER HAS EVIDENCE OF SEWAGE, SOURCE UNKNOWN
 - ⊙ SANITARY MANHOLE
T/C EL.=865.23
INV. 8" NORTHEAST EL.=855.50 (PER PLAN)
INV. 8" SOUTHEAST EL.=855.50 (PER PLAN)



MATCH LINE - SEE SHEET 1/4

MATCH LINE - SEE SHEET 4/4

<p>REVISIONS</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 10%;">NO.</th> <th style="width: 10%;">DATE</th> <th style="width: 80%;">DESCRIPTION</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	NO.	DATE	DESCRIPTION							<p>SCALE: 1"=30'</p> <p>PRO. JOB NO.: 24-317</p> <p>DATE OF SURVEY: 12/6/2024</p> <p>CLIENT: KLEINGERS GROUP</p> <p>CLIENT P.O.:</p> <p>F.B./P.G.: 47/35</p> <div style="text-align: center;"> </div> <p>PRO BOUNDARY LAND SURVEYORS</p> <p>8850 COMMERCE LOOP DR COLUMBUS, OH 43240 (614) 899-2209</p> <p>BY: <i>Timothy P. Stadler</i> OHIO PROFESSIONAL SURVEYOR NO. 8723</p>	<p>TOPOGRAPHIC SURVEY WALNUT RIDGE PARK CITY OF WESTERVILLE, OHIO</p> <p>SHEET 3/4</p>
NO.	DATE	DESCRIPTION									

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

THE KLEINGERS GROUP

CIVIL ENGINEERING
SURVEYING
LANDSCAPE
ARCHITECTURE
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350 Worthington Rd
Suite 11
Westerville, OH 43082
614.892.4311

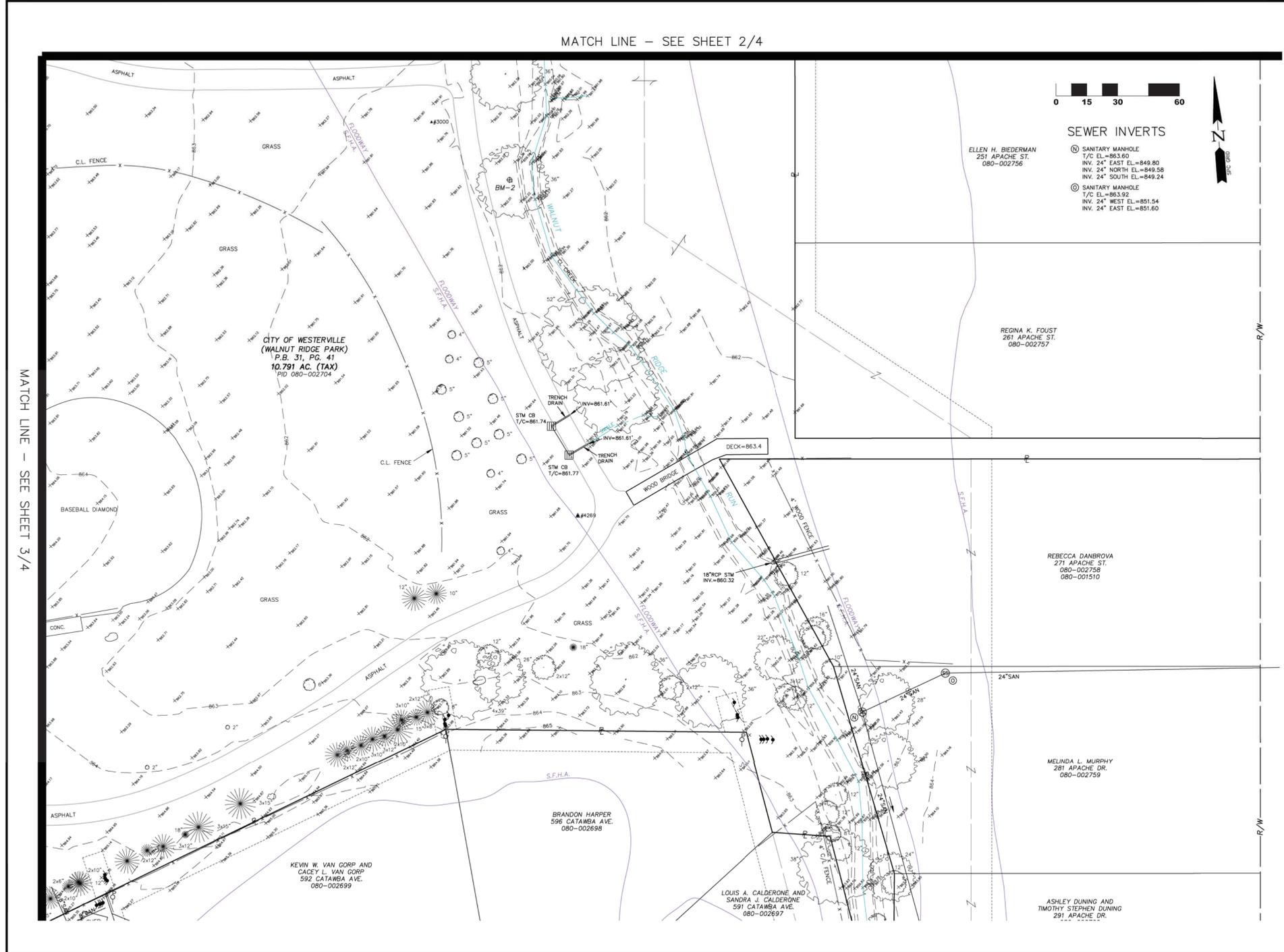
SCALE:
AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

TOPOGRAPHIC SURVEY - SOUTHWEST

APPROVED
2024-004

20
41



REVISIONS

2/5/24	EXPANDED LIMITS
--------	-----------------

SCALE: 1"=30'

PRO JOB NO.: 24-317

DATE OF SURVEY: 12/6/2024

CLIENT: KLEINGERS GROUP

CLIENT P.O.:

F.B./P.C.: 47/35

STATE OF OHIO

TIMOTHY P. STADT

LAND SURVEYOR

PRO BOUNDARY LAND SURVEYORS

BY: *Timothy P. Stadt*

OHIO PROFESSIONAL SURVEYOR NO. 8723

8850 COMMERCE LOOP DR
COLUMBUS, OH 43240
(614) 899-2209

TOPOGRAPHIC SURVEY
WALNUT RIDGE PARK
CITY OF WESTERVILLE, OHIO

SHEET
4 / 4

REVISIONS	
MARK	DATE

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KLEINGERS GROUP

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614.892.4311

SCALE:

AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

TOPOGRAPHIC SURVEY - SOUTHEAST

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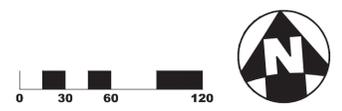
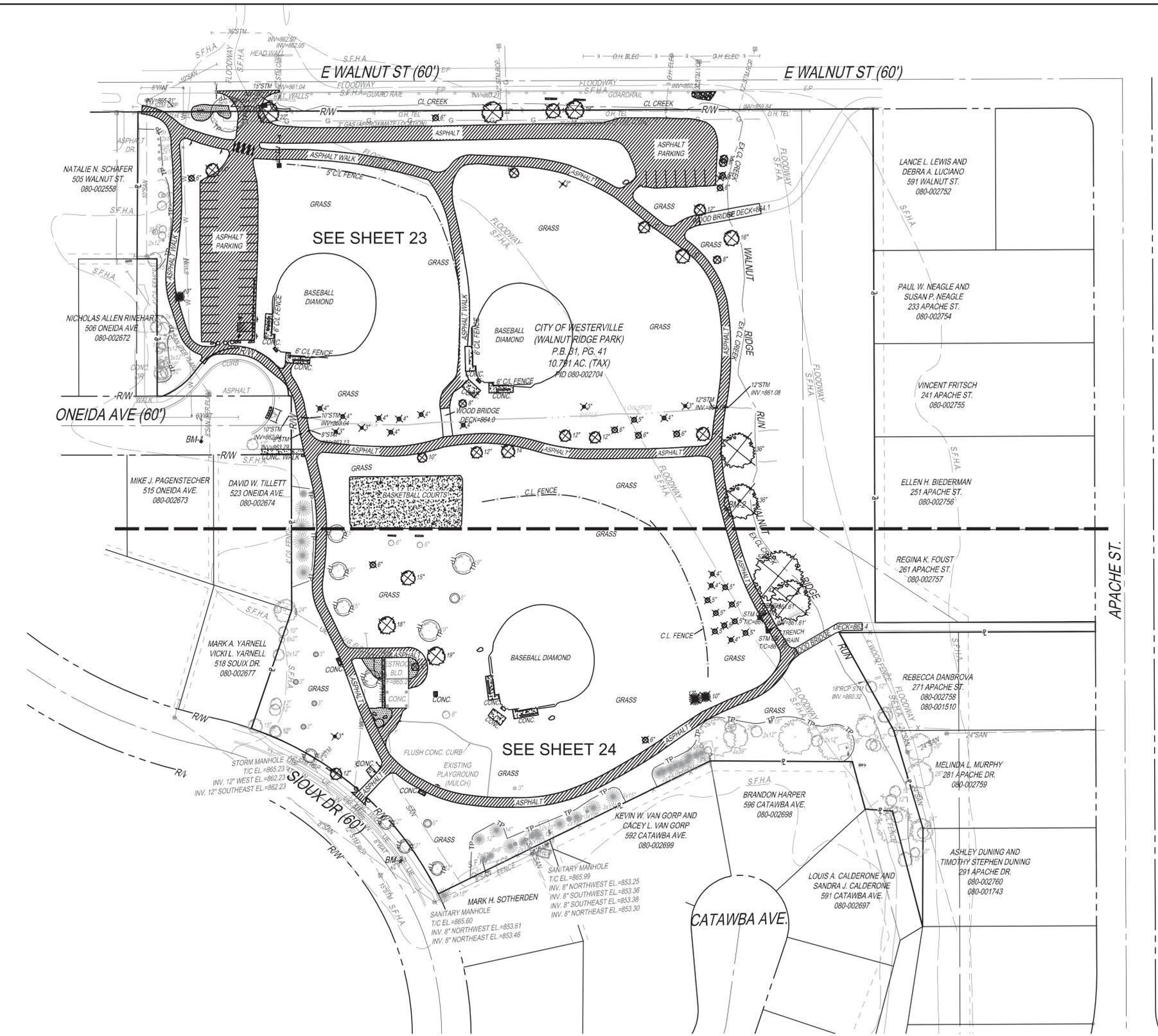
2024-004

21
41

- GENERAL NOTES**
- THIS DRAWING IS BASED ON AN ACTUAL FIELD SURVEY PERFORMED BY PRO BOUNDARY LAND SURVEYORS IN DECEMBER 2024.
 - CONTRACTOR SHALL VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES. IF IN CONFLICT WITH PROPOSED THEN LOWER EXISTING UTILITIES. CAUTION WHEN EXCAVATING. IF SITE CONDITIONS WOULD PROHIBIT THE LOWERING OR RELOCATION OF EXISTING UTILITIES, THE ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
 - STOCKPILE ANY BOULDERS LARGER THAN 24" IN ANY DIMENSION, FOR REUSE IN STREAM CONSTRUCTION.
 - ALL ITEMS TO BE DEMOLISHED AND REMOVED ARE TO BE DISPOSED OF OFF-SITE IN ACCORDANCE WITH ALL LOCAL, STATE, AND FEDERAL REGULATIONS.
 - PRIOR TO CONSTRUCTION, CONTRACTOR SHALL VERIFY CONDITION OF EXISTING STRUCTURES TO CONFIRM ADEQUACY OF PROPOSED UTILITY CONNECTIONS. IF CONDITIONS IN FIELD DIFFER, ENGINEER SHALL BE NOTIFIED IMMEDIATELY.
 - ALL EXISTING UTILITIES SHALL BE VERIFIED PRIOR TO CONSTRUCTION. DEMOLITION AND/OR CONSTRUCTION ACTIVITY SHOWN HEREIN MAY REQUIRE THE RELOCATION OR LOWERING OF THOSE UTILITIES. CONTINGENCY SHOULD ACCOUNT FOR ANY UNFORESEEN UTILITY CONFLICT OR LESS THAN ADEQUATE EXISTING DEPTH.

- EXISTING LEGEND**
- | | | | |
|--|------------------|--|-------------------|
| | VERTICAL BM | | WATER VALVE |
| | IRON PIPE FOUND | | FIRE HYDRANT |
| | IRON PIN FOUND | | SANITARY MANHOLE |
| | SIGN | | STORM MANHOLE |
| | BOULDER | | STORM CATCH BASIN |
| | DECIDUOUS TREE | | ELEC. PULLBOX |
| | CONIFER TREE | | UTILITY POLE |
| | CHAIN LINK FENCE | | SITE LIGHT |

- DEMOLITION LEGEND**
- | | |
|--|---|
| | ITEM 202 REMOVE ASPHALT PAVEMENT & BASE |
| | ITEM 202 REMOVE CONCRETE PAVEMENT & BASE |
| | ITEM 202 REMOVE LANDSCAPING |
| | SAWCUT |
| | ITEM 201 REMOVE TREE, GRIND STUMP TO 12" BELOW FINISHED GRADE |
| | ITEM 655 TREE PROTECTION, SEE DETAIL 2 / SHEET 37 |



REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

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 614.882.4311

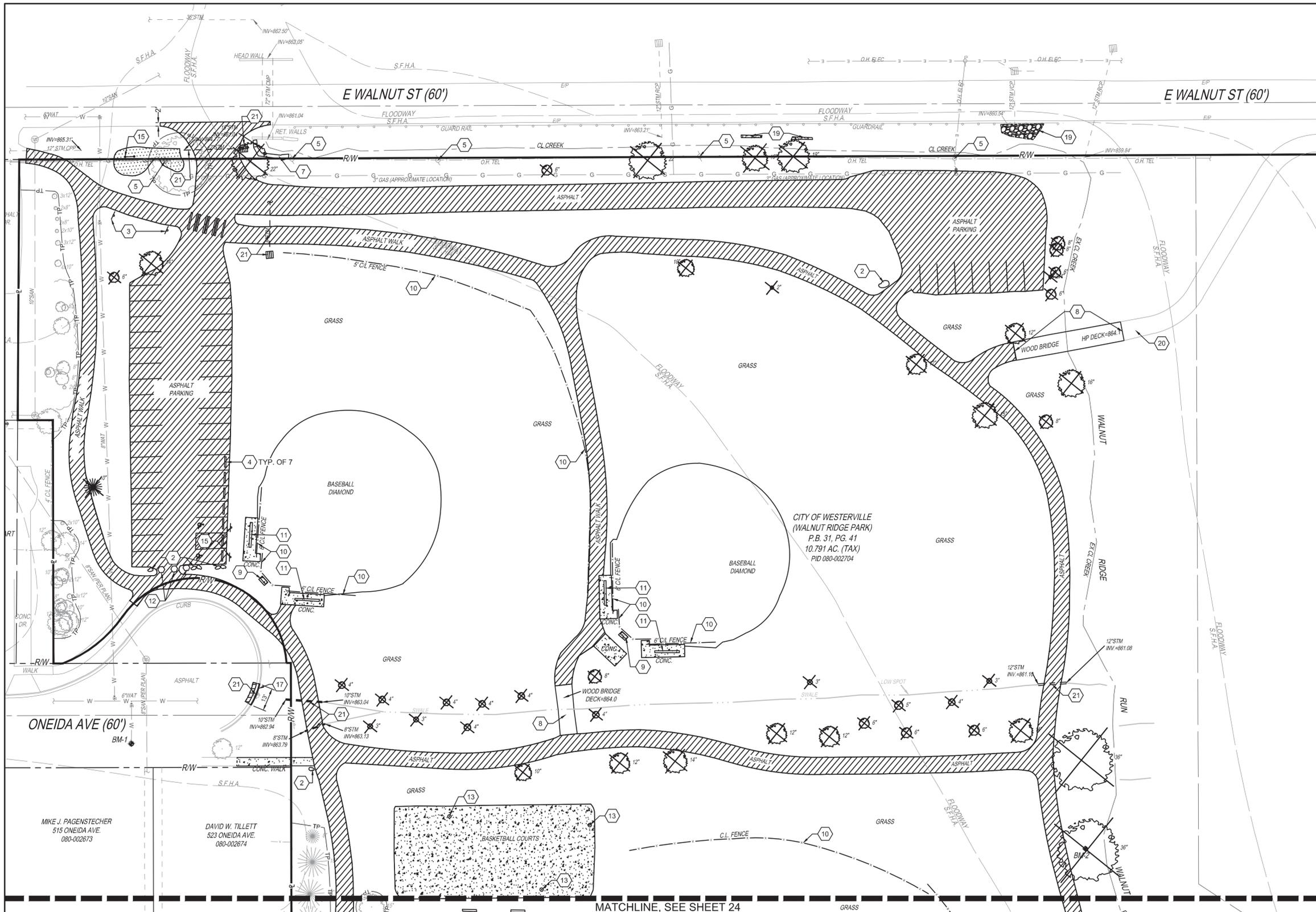
SCALE:
 1" = 60'

WALNUT RIDGE PARK IMPROVEMENTS

OVERALL DEMOLITION PLAN

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 2024-004

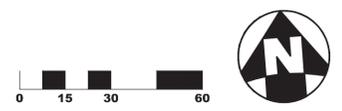
22
 41



- EXISTING LEGEND**
- VERTICAL BM
 - IRON PIPE FOUND
 - IRON PIN FOUND
 - SIGN
 - BOULDER
 - DECIDUOUS TREE
 - CONIFER TREE
 - CHAIN LINK FENCE
 - WATER VALVE
 - FIRE HYDRANT
 - SANITARY MANHOLE
 - STORM MANHOLE
 - STORM CATCH BASIN
 - ELEC. PULLBOX
 - UTILITY POLE
 - SITE LIGHT

- DEMOLITION LEGEND**
- ITEM 202 REMOVE ASPHALT PAVEMENT & BASE
 - ITEM 202 REMOVE CONCRETE PAVEMENT & BASE
 - ITEM 202 REMOVE LANDSCAPING
 - SAWCUT
 - ITEM 201 REMOVE TREE, GRIND STUMP TO 12" BELOW FINISHED GRADE
 - ITEM 655 TREE PROTECTION, SEE DETAIL 2 / SHEET 37

- CODED NOTES**
- 1 ITEM 202 SALVAGE BENCH, SEE LOCATION PLAN FOR RELOCATION
 - 2 ITEM 202 SALVAGE BOULDER, SEE LOCATION PLAN FOR RELOCATION
 - 3 ITEM 630 SALVAGE SIGN, SEE LOCATION PLAN FOR RELOCATION
 - 4 ITEM 202 REMOVE PARKING BLOCK
 - 5 EXISTING UTILITY POLE TO REMAIN, PROTECT IN PLACE
 - 6 EXISTING PLAYGROUND AND SURFACING TO REMAIN, PROTECT IN PLACE
 - 7 ITEM 202 SALVAGE LIMESTONE BLOCK, SEE LOCATION PLAN FOR RELOCATION
 - 8 ITEM 202 REMOVE WOODEN BRIDGE AND FOUNDATIONS
 - 9 ITEM 202 SALVAGE STORAGE BOX AND RETURN TO OWNER
 - 10 ITEM 202 REMOVE CHAIN LINK FENCE / BACKSTOP AND FOUNDATIONS
 - 11 ITEM 202 REMOVE BENCH AND FOUNDATION
 - 12 ITEM 202 REMOVE BOLLARD AND FOUNDATION
 - 13 ITEM 202 REMOVE BASKETBALL HOOP AND FOUNDATIONS
 - 14 ITEM 202 REMOVE BIKE RACKS AND FOUNDATIONS
 - 15 ITEM 630 REMOVE SIGN AND FOUNDATIONS
 - 16 ITEM 202 REMOVE GRILL AND FOUNDATIONS
 - 17 ITEM 202 REMOVE CONCRETE CURB
 - 18 EXISTING BUILDING / SHELTER TO REMAIN, PROTECT IN PLACE
 - 19 ITEM 202 REMOVE RIPRAP / EROSION CONTROL
 - 20 EXISTING PATH TO REMAIN, PROTECT IN PLACE
 - 21 ITEM 202 REMOVE STORM STRUCTURE / PIPING
 - 22 ITEM 202 REMOVE FLUSH CURB, SAWCUT VERTICAL AND STRAIGHT



REVISIONS		
MARK	DATE	DESCRIPTION

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 Suite 11
 Westerville, OH 43082
 614.882.4311

SCALE:
 1" = 30'

WALNUT RIDGE PARK IMPROVEMENTS

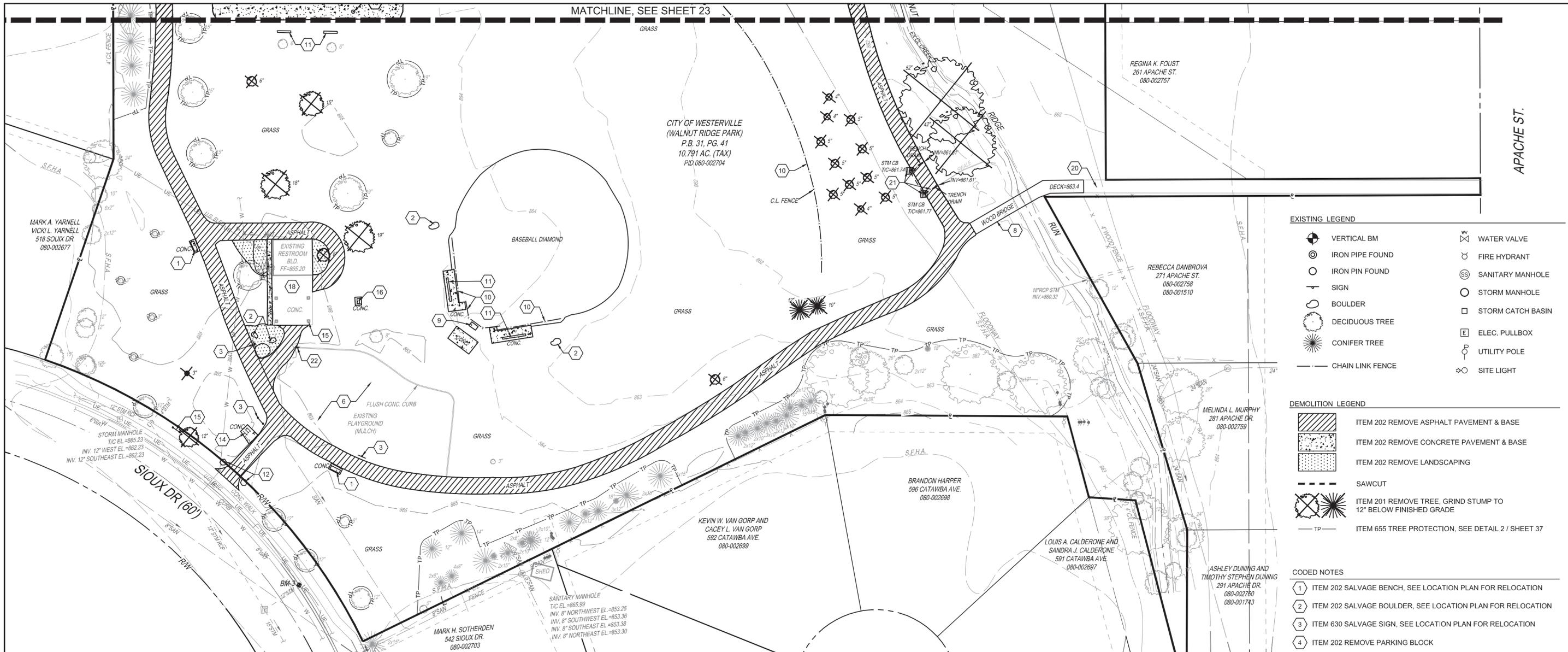
DEMOLITION PLAN - NORTH

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23
41

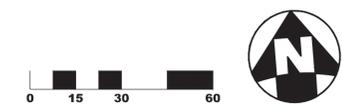
MATCHLINE, SEE SHEET 23



- EXISTING LEGEND**
- VERTICAL BM
 - IRON PIPE FOUND
 - IRON PIN FOUND
 - SIGN
 - BOULDER
 - DECIDUOUS TREE
 - CONIFER TREE
 - CHAIN LINK FENCE
 - WATER VALVE
 - FIRE HYDRANT
 - SANITARY MANHOLE
 - STORM MANHOLE
 - STORM CATCH BASIN
 - ELEC. PULLBOX
 - UTILITY POLE
 - SITE LIGHT

- DEMOLITION LEGEND**
- ITEM 202 REMOVE ASPHALT PAVEMENT & BASE
 - ITEM 202 REMOVE CONCRETE PAVEMENT & BASE
 - ITEM 202 REMOVE LANDSCAPING
 - SAWCUT
 - ITEM 201 REMOVE TREE, GRIND STUMP TO 12" BELOW FINISHED GRADE
 - ITEM 655 TREE PROTECTION, SEE DETAIL 2 / SHEET 37

- CODED NOTES**
- 1 ITEM 202 SALVAGE BENCH, SEE LOCATION PLAN FOR RELOCATION
 - 2 ITEM 202 SALVAGE BOULDER, SEE LOCATION PLAN FOR RELOCATION
 - 3 ITEM 630 SALVAGE SIGN, SEE LOCATION PLAN FOR RELOCATION
 - 4 ITEM 202 REMOVE PARKING BLOCK
 - 5 EXISTING UTILITY POLE TO REMAIN, PROTECT IN PLACE
 - 6 EXISTING PLAYGROUND AND SURFACING TO REMAIN, PROTECT IN PLACE
 - 7 EXISTING WOODEN BRIDGE TO REMAIN, PROTECT IN PLACE
 - 8 ITEM 202 REMOVE WOODEN BRIDGE AND FOUNDATIONS
 - 9 ITEM 202 SALVAGE STORAGE BOX AND RETURN TO OWNER
 - 10 ITEM 202 REMOVE CHAIN LINK FENCE / BACKSTOP AND FOUNDATIONS
 - 11 ITEM 202 REMOVE BENCH AND FOUNDATION
 - 12 ITEM 202 REMOVE BOLLARD AND FOUNDATION
 - 13 ITEM 202 REMOVE BASKETBALL HOOP AND FOUNDATIONS
 - 14 ITEM 202 REMOVE BIKE RACKS AND FOUNDATIONS
 - 15 ITEM 630 REMOVE SIGN AND FOUNDATIONS
 - 16 ITEM 202 REMOVE GRILL AND FOUNDATIONS
 - 17 ITEM 202 REMOVE CONCRETE CURB
 - 18 EXISTING BUILDING / SHELTER TO REMAIN, PROTECT IN PLACE
 - 19 ITEM 202 REMOVE RIPRAP / EROSION CONTROL
 - 20 EXISTING PATH TO REMAIN, PROTECT IN PLACE
 - 21 ITEM 202 REMOVE STORM STRUCTURE / PIPING
 - 22 ITEM 202 REMOVE FLUSH CURB, SAWCUT VERTICAL AND STRAIGHT



REVISIONS		
MARK	DATE	DESCRIPTION

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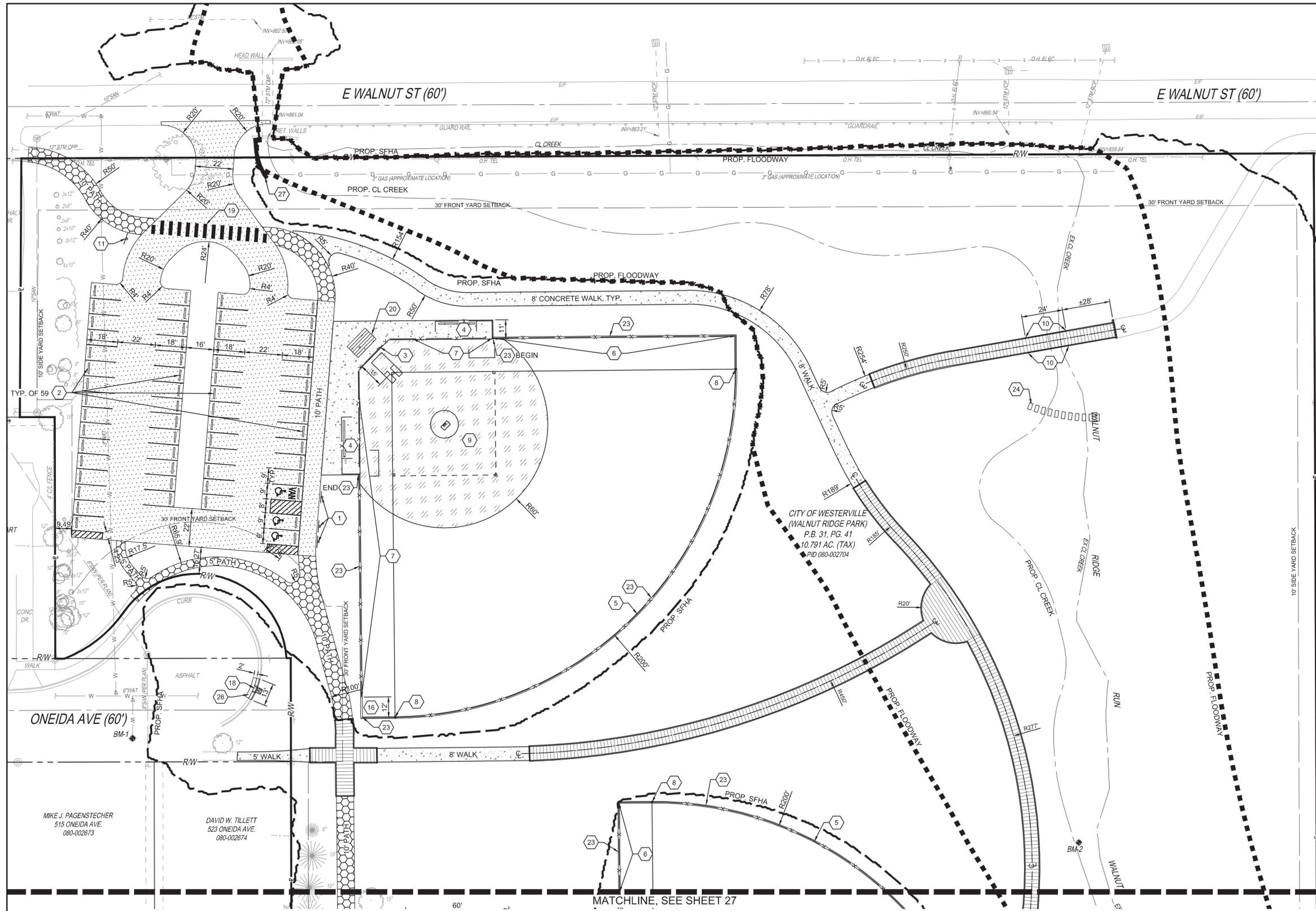
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 1" = 30'

WALNUT RIDGE PARK IMPROVEMENTS

DEMOLITION PLAN - SOUTH

APPROVED
 2024-004

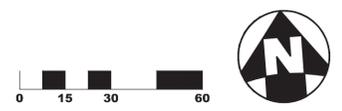
24
41



LEGEND

- ASPHALT PAVEMENT
- CONCRETE WALK
- BOARDWALK
- RECREATIONAL PATHWAY
- SPECIALTY ASPHALT PAVEMENT
- PERVIOUS CONCRETE PAVEMENT
- SKINNED INFIELD, SEE SPECIFICATIONS

- CODED NOTES**
- 1 NEW ACCESSIBLE PARKING SIGN, SEE DETAIL 6 / SHEET 12
 - 2 PRECAST CONCRETE WHEEL STOP, SEE DETAIL 3 / SHEET 12
 - 3 BASEBALL BACKSTOP, SEE DETAIL 1 / SHEET 13
 - 4 BASEBALL DUGOUT, SEE DETAIL 4 / SHEET 13
 - 5 4' TALL CHAIN LINK FENCE, SEE DETAIL 2 / SHEET 13
 - 6 6' TALL CHAIN LINK FENCE, SEE DETAIL 2 / SHEET 13
 - 7 8' TALL CHAIN LINK FENCE, SEE DETAIL 2 / SHEET 13
 - 8 FOUL POLE, SEE DETAIL 3 / SHEET 13
 - 9 FIELD TO HAVE IN-GROUND MARKERS FOR BASES AT 50', 60', 65' AND 70', AND MARKERS FOR PITCHING RUBBER AT 40', 45', AND 50' FROM HOME PLATE. FOUL LINES TO HAVE IN-GROUND MARKERS IN OUTFIELD TO ALLOW LINING OF INFIELD FOUL LINES.
 - 10 BOARDWALK GUARD RAIL, SEE DETAIL 7 / SHEET 15
 - 11 RELOCATED DONOR SIGN, COORDINATE WITH OWNER'S REPRESENTATIVE
 - 12 "NO SMOKING" SIGN, ATTACH TO SHELTER POST
 - 13 CONCRETE PAD FOR OWNER FURNISHED BENCH, CONTRACTOR TO COORDINATE WITH OWNER TO PICKUP AT 469 WESTDALE AVENUE AND INSTALL.
 - 14 TABLE, TYP. OF 5, SEE DETAIL 3 / SHEET 14
 - 15 BIKE RACK, TYP. OF 3, SEE DETAIL 1 / SHEET 14
 - 16 PROVIDE GAP IN FENCE
 - 17 FLUSH CURB, SEE DETAIL 9 / SHEET 13
 - 18 COLS ITEM 609 - COMBINATION CURB AND GUTTER. BASIN INLET TRANSITION PAD PER AA-S192 WITH CURB PLATE PER AA-S191 AND SPLASH PAD PER AA-S193
 - 19 CROSSWALK PAVEMENT MARKINGS, SEE DETAIL 8 / SHEET 12
 - 20 RELOCATED BLEACHERS, FREESTANDING
 - 21 RELOCATED BENCH ON CONCRETE PAD, SURFACE MOUNT
 - 22 BASKETBALL COURT LAYOUT, SEE DETAIL 5 / SHEET 13
 - 23 BID ALTERNATE: FLUSH CONCRETE CURB BELOW FENCE, SEE DETAIL 6 / SHEET 13
 - 24 11 STEPPING STONES, OWNER FURNISHED, CONTRACTOR INSTALLED. COORDINATE WITH OWNER TO PICKUP FROM MAINTENANCE YARD. SEE DETAIL 6 / SHEET 17
 - 25 GRILL, SEE DETAIL 2 / SHEET 14
 - 26 ITEM 253 PAVEMENT REPAIR
 - 27 RETAINING WALL CONSTRUCTED FROM SALVAGED BOULDERS



REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:
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 614.882.4311

SCALE:
 1" = 30'

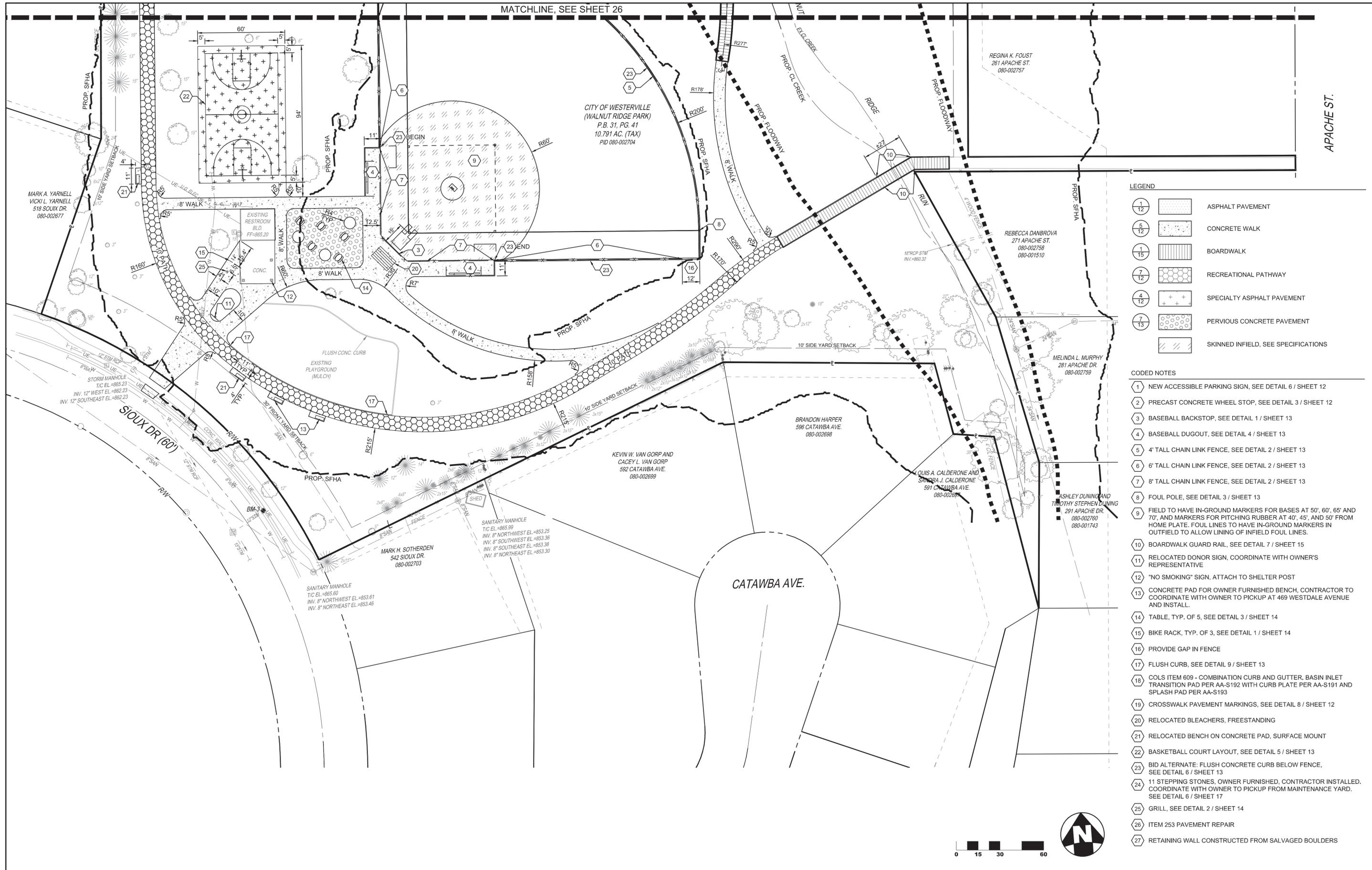
WALNUT RIDGE PARK IMPROVEMENTS

LOCATION PLAN - NORTH

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 2024-004

26
 41

MATCHLINE, SEE SHEET 26



- LEGEND**
- 1/12 ASPHALT PAVEMENT
 - 5/12 CONCRETE WALK
 - 1/15 BOARDWALK
 - 7/12 RECREATIONAL PATHWAY
 - 4/12 SPECIALTY ASPHALT PAVEMENT
 - 7/13 PERVIOUS CONCRETE PAVEMENT
 - SKINNED INFIELD, SEE SPECIFICATIONS

- CODED NOTES**
- 1 NEW ACCESSIBLE PARKING SIGN, SEE DETAIL 6 / SHEET 12
 - 2 PRECAST CONCRETE WHEEL STOP, SEE DETAIL 3 / SHEET 12
 - 3 BASEBALL BACKSTOP, SEE DETAIL 1 / SHEET 13
 - 4 BASEBALL DUGOUT, SEE DETAIL 4 / SHEET 13
 - 5 4' TALL CHAIN LINK FENCE, SEE DETAIL 2 / SHEET 13
 - 6 6' TALL CHAIN LINK FENCE, SEE DETAIL 2 / SHEET 13
 - 7 8' TALL CHAIN LINK FENCE, SEE DETAIL 2 / SHEET 13
 - 8 FOUL POLE, SEE DETAIL 3 / SHEET 13
 - 9 FIELD TO HAVE IN-GROUND MARKERS FOR BASES AT 50', 60', 65' AND 70', AND MARKERS FOR PITCHING RUBBER AT 40', 45', AND 50' FROM HOME PLATE. FOUL LINES TO HAVE IN-GROUND MARKERS IN OUTFIELD TO ALLOW LINING OF INFIELD FOUL LINES.
 - 10 BOARDWALK GUARD RAIL, SEE DETAIL 7 / SHEET 15
 - 11 RELOCATED DONOR SIGN, COORDINATE WITH OWNER'S REPRESENTATIVE
 - 12 "NO SMOKING" SIGN, ATTACH TO SHELTER POST
 - 13 CONCRETE PAD FOR OWNER FURNISHED BENCH, CONTRACTOR TO COORDINATE WITH OWNER TO PICKUP AT 469 WESTDALE AVENUE AND INSTALL.
 - 14 TABLE, TYP. OF 5, SEE DETAIL 3 / SHEET 14
 - 15 BIKE RACK, TYP. OF 3, SEE DETAIL 1 / SHEET 14
 - 16 PROVIDE GAP IN FENCE
 - 17 FLUSH CURB, SEE DETAIL 9 / SHEET 13
 - 18 COLS ITEM 609 - COMBINATION CURB AND GUTTER, BASIN INLET TRANSITION PAD PER AA-S192 WITH CURB PLATE PER AA-S191 AND SPLASH PAD PER AA-S193
 - 19 CROSSWALK PAVEMENT MARKINGS, SEE DETAIL 8 / SHEET 12
 - 20 RELOCATED BLEACHERS, FREESTANDING
 - 21 RELOCATED BENCH ON CONCRETE PAD, SURFACE MOUNT
 - 22 BASKETBALL COURT LAYOUT, SEE DETAIL 5 / SHEET 13
 - 23 BID ALTERNATE: FLUSH CONCRETE CURB BELOW FENCE, SEE DETAIL 6 / SHEET 13
 - 24 11 STEPPING STONES, OWNER FURNISHED, CONTRACTOR INSTALLED. COORDINATE WITH OWNER TO PICKUP FROM MAINTENANCE YARD. SEE DETAIL 6 / SHEET 17
 - 25 GRILL, SEE DETAIL 2 / SHEET 14
 - 26 ITEM 253 PAVEMENT REPAIR
 - 27 RETAINING WALL CONSTRUCTED FROM SALVAGED BOULDERS

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

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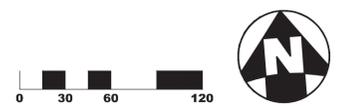
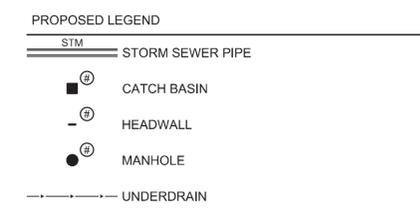
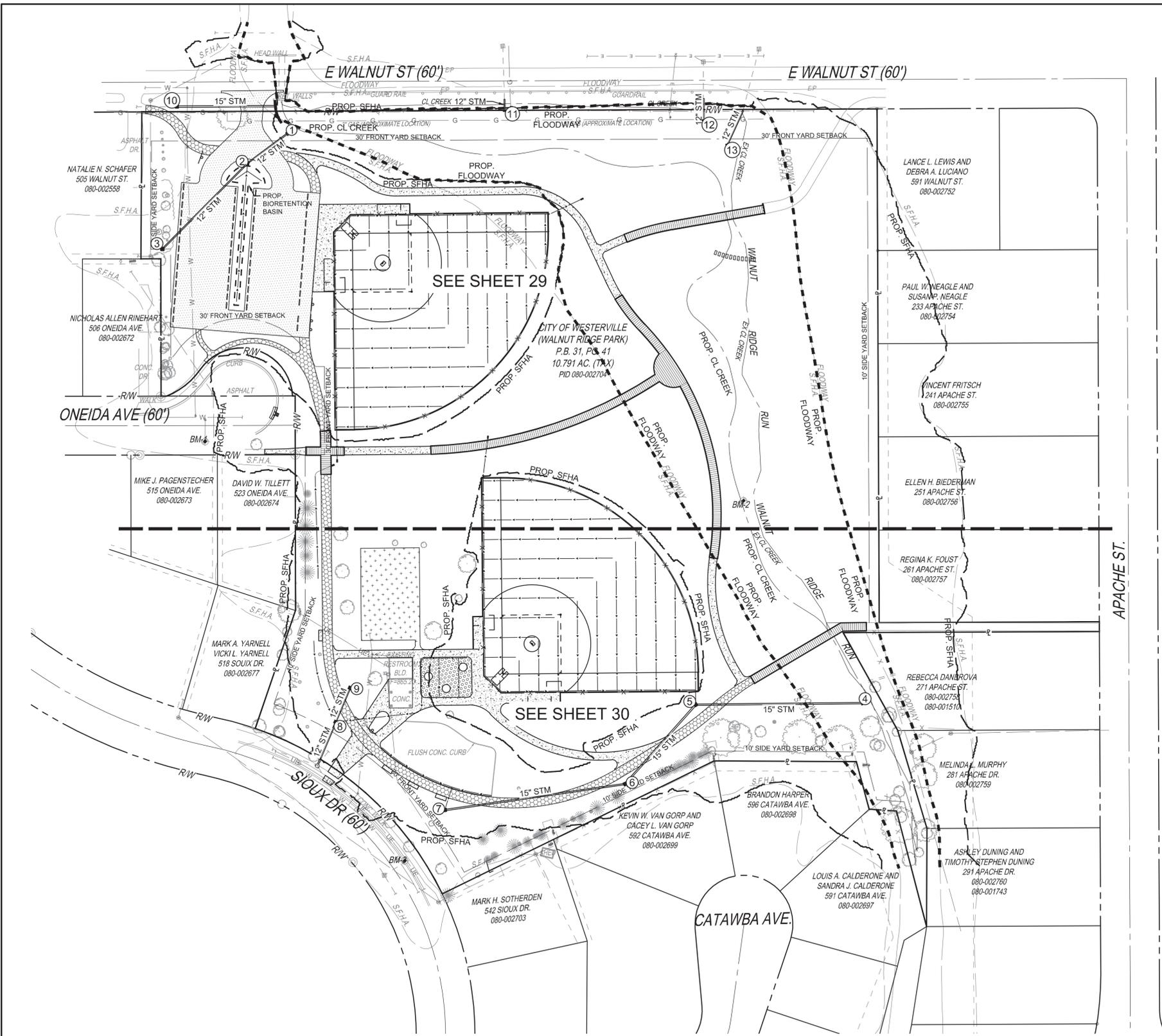
SCALE:
 1" = 30'

WALNUT RIDGE PARK IMPROVEMENTS

LOCATION PLAN - SOUTH

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 2024-004

27
41



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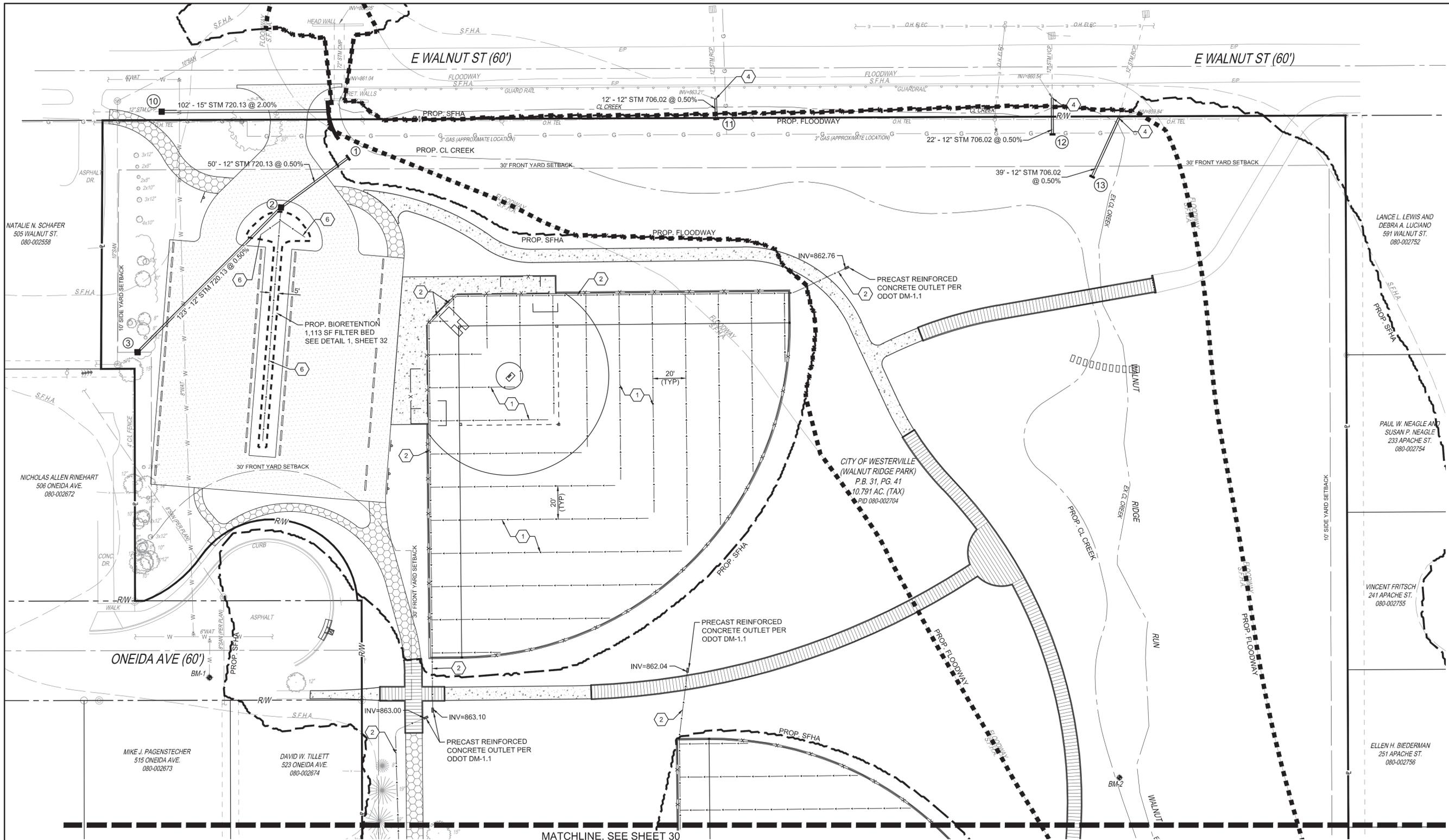
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SCALE:
 1" = 60'

WALNUT RIDGE PARK IMPROVEMENTS

OVERALL UTILITY PLAN

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 2024-004



MATCHLINE, SEE SHEET 30

CODED NOTES

- ① ITEM 605 4" Ø FIELD UNDERDRAIN, SEE DETAIL 8 / SHEET 13
- ② ITEM 605 6" Ø UNDERDRAIN, SEE DETAIL 2 / SHEET 12
- ③ ITEM 605 4" Ø UNDERDRAIN FROM PERVIOUS CONCRETE, SEE DETAIL 7 / SHEET 13
- ④ CONNECT TO EX PIPE WITH PREFORMED SHIELDED RUBBER COUPLING RINGS IN ACCORDANCE WITH THE CURRENT CITY OF COLUMBUS APPROVED PRODUCTS LIST
- ⑤ CORE DRILL AND CONNECT TO EXISTING MANHOLE
- ⑥ ITEM 605 6" Ø UNDERDRAIN, SEE DETAIL 1 / SHEET 32 (720.12)

PROPOSED LEGEND

- STM — STORM SEWER PIPE
- ② CATCH BASIN
- ② HEADWALL
- ② MANHOLE
- - - UNDERDRAIN



REVISIONS		
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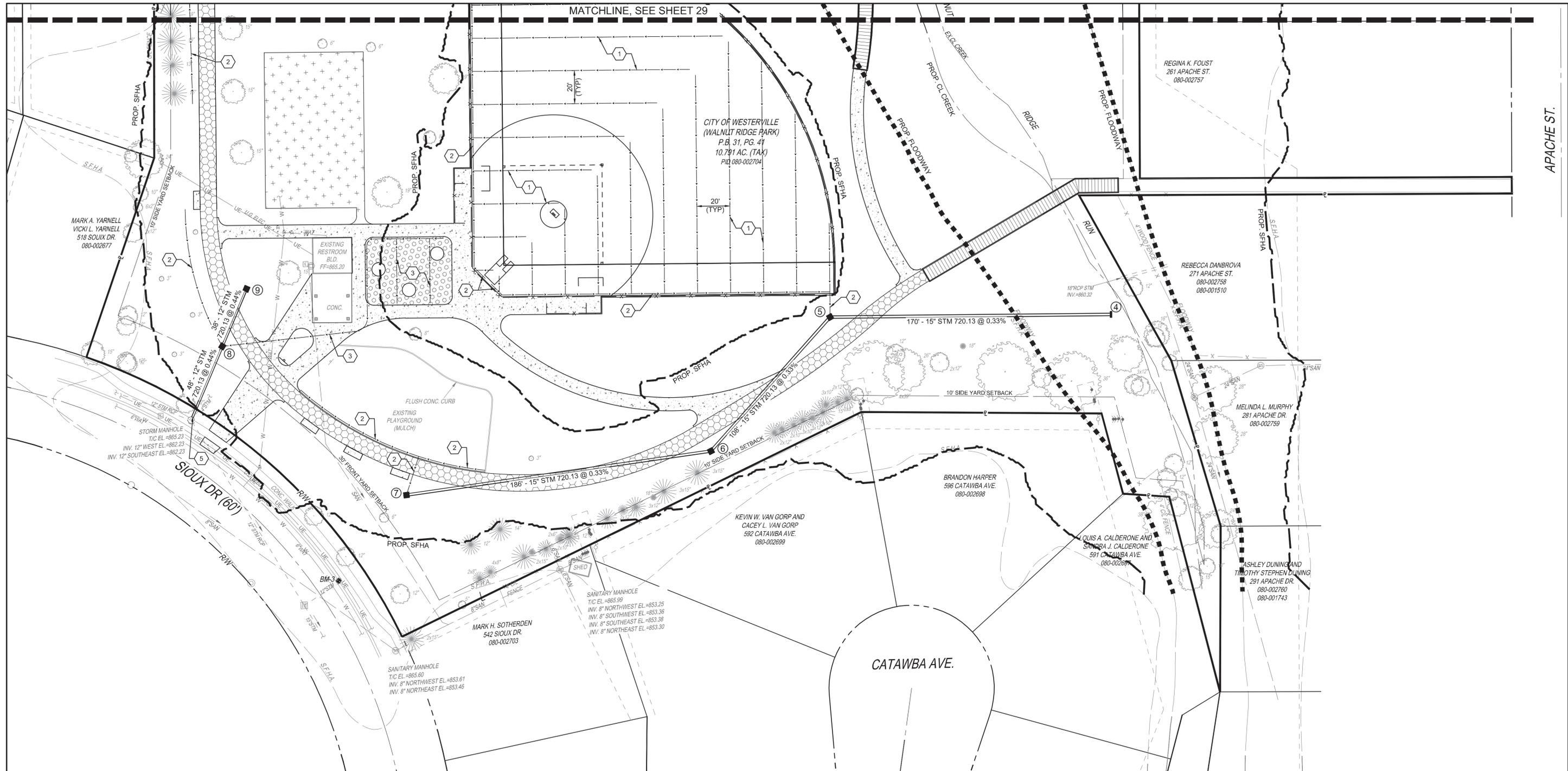
SCALE:
 1" = 30'

WALNUT RIDGE PARK IMPROVEMENTS

UTILITY PLAN - NORTH

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 2024-004

29
 41



MATCHLINE, SEE SHEET 29

CITY OF WESTERVILLE
(WALNUT RIDGE PARK)
P.B. 31, PG. 41
10.791 AC. (TAX)
PID 080-002704

REGINA K. FOUST
261 APACHE ST.
080-002757

REBECCA DANBROVA
271 APACHE ST.
080-002758
080-001510

MELINDA L. MURPHY
281 APACHE DR.
080-002759

BRANDON HARPER
596 CATAWBA AVE.
080-002698

KEVIN W. VAN GORP AND
CACEY L. VAN GORP
592 CATAWBA AVE.
080-002699

LOUIS A. CALDERONE AND
SABARA J. CALDERONE
591 CATAWBA AVE.
080-002699

ASHLEY DUNING AND
TIMOTHY STEPHEN DUNING
291 APACHE DR.
080-002760
080-001743

MARK H. SOTHERDEN
542 SIOUX DR.
080-002703

SANITARY MANHOLE
T/C EL.=865.60
INV. 8" NORTHWEST EL.=853.61
INV. 8" NORTHEAST EL.=853.46

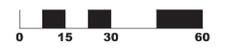
SANITARY MANHOLE
T/C EL.=865.99
INV. 8" NORTHWEST EL.=853.25
INV. 8" SOUTHWEST EL.=853.38
INV. 8" SOUTHEAST EL.=853.38
INV. 8" NORTHEAST EL.=853.30

CODED NOTES

- ① ITEM 605 4" Ø FIELD UNDERDRAIN, SEE DETAIL 8 / SHEET 13
- ② ITEM 605 6" Ø UNDERDRAIN, SEE DETAIL 2 / SHEET 12
- ③ ITEM 605 4" Ø UNDERDRAIN FROM PERVIOUS CONCRETE, SEE DETAIL 7 / SHEET 13
- ④ CONNECT TO EX PIPE WITH PREFORMED SHIELDED RUBBER COUPLING RINGS IN ACCORDANCE WITH THE CURRENT CITY OF COLUMBUS APPROVED PRODUCTS LIST
- ⑤ CORE DRILL AND CONNECT TO EXISTING MANHOLE

PROPOSED LEGEND

- STM — STORM SEWER PIPE
- ② CATCH BASIN
- ② HEADWALL
- ② MANHOLE
- - - UNDERDRAIN



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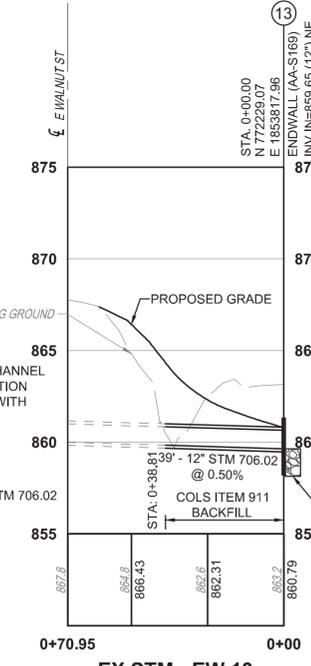
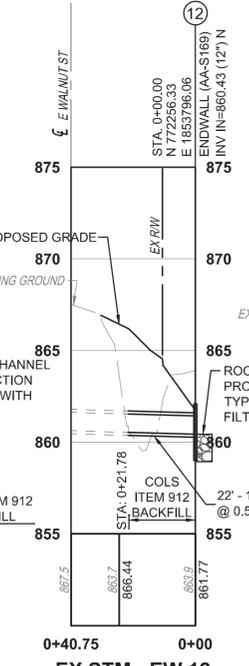
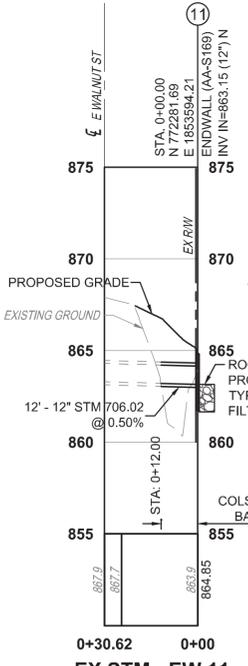
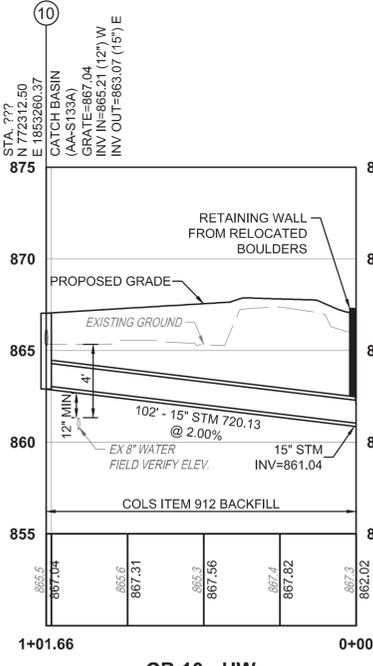
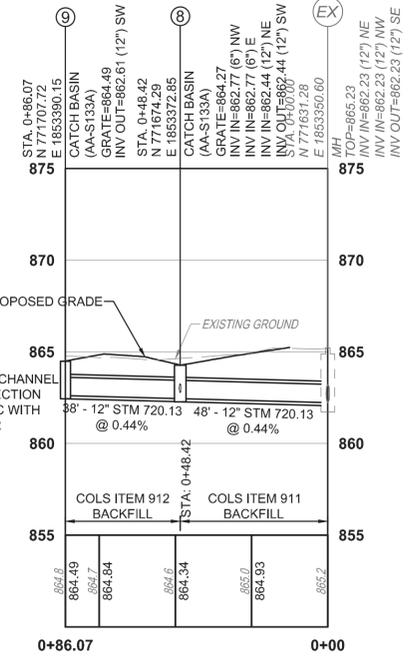
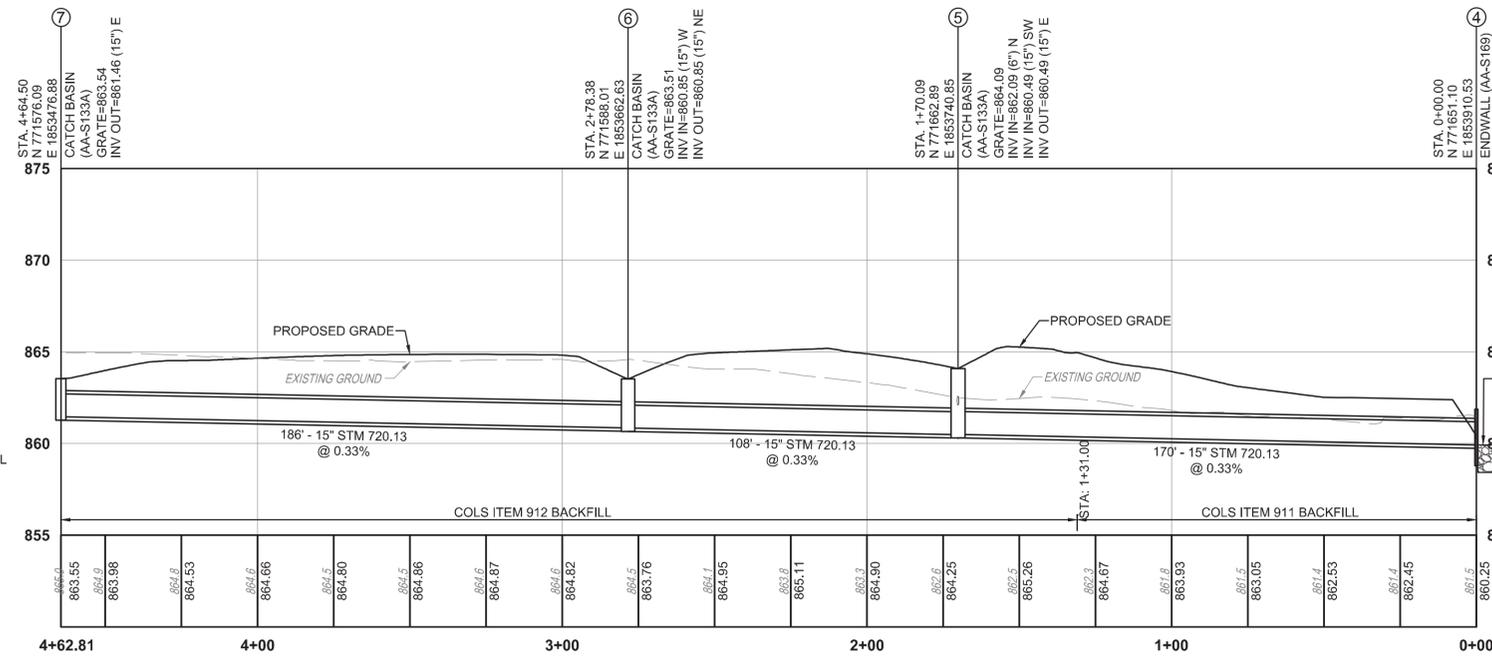
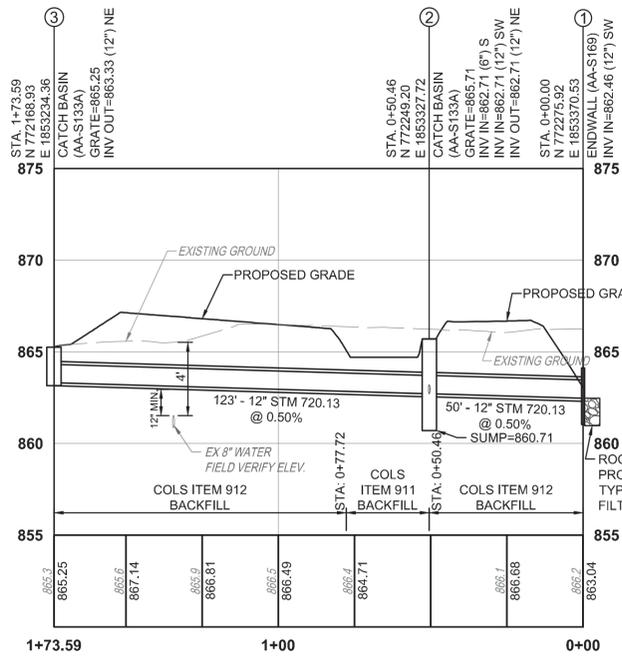
SCALE:
 1" = 30'

WALNUT RIDGE PARK IMPROVEMENTS

UTILITY PLAN - SOUTH

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 2024-004

30
41

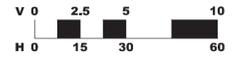


STR. NO.	PLAN		AS-BUILT	
	NORTHING	EASTING	NORTHING	EASTING
1	772275.92	1853370.53		
2	772249.20	1853327.72		
3	772168.93	1853234.36		
4	771651.10	1853910.53		
5	771662.89	1853740.85		
6	771588.01	1853662.63		
7	771576.09	1853476.88		
8	771674.29	1853372.85		
9	771707.72	1853390.15		
10	772312.50	1853260.37		
11	772281.69	1853594.21		
12	772256.33	1853796.06		
13	772229.07	1853817.96		

STORM PIPES		
STR - STR	BEARING	DISTANCE
EX - 11	S02° 34' 09"W	12.00
EX - 12	S04° 09' 02"W	22.03
EX - 13	S29° 07' 35"W	38.80
2 - 1	N58° 01' 45"E	50.46
3 - 2	N49° 18' 49"E	123.12
5 - 4	S86° 01' 32"E	170.09
6 - 5	N46° 15' 01"E	108.29
7 - 6	N86° 19' 43"E	186.13
8 - EX MH	S27° 21' 37"W	48.42
9 - 8	S27° 21' 37"W	37.65
10 - HW	S85° 43' 10"E	101.66

- NOTES:**
- CONTRACTOR TO VERIFY LOCATION AND DEPTH OF ALL EXISTING UTILITIES BEFORE CONSTRUCTION BEGINS. USE CAUTION WHEN EXCAVATING. IF EXISTING UTILITIES ARE IN CONFLICT WITH PROPOSED UTILITIES, PLEASE NOTIFY THE DESIGN ENGINEER.
 - ALL ELEVATION ON THIS PLAN ARE BASED ON NAVD 1988 DATUM UNLESS OTHERWISE NOTED.
 - ALL EXISTING UTILITY CROSSINGS SHALL BE POTHOLED PRIOR TO CONSTRUCTION AND THE ENGINEER SHALL BE NOTIFIED IN ADVANCE IF ANY CONFLICTS ARISE.
 - PROVIDE TRENCHES, BEDDING AND BACKFILL IN ACCORDANCE WITH THE CITY OF COLUMBUS DOSD STANDARD DRAWINGS AND CMS.

PROFILE VERTICAL DATUM = NAVD 88



REVISIONS		
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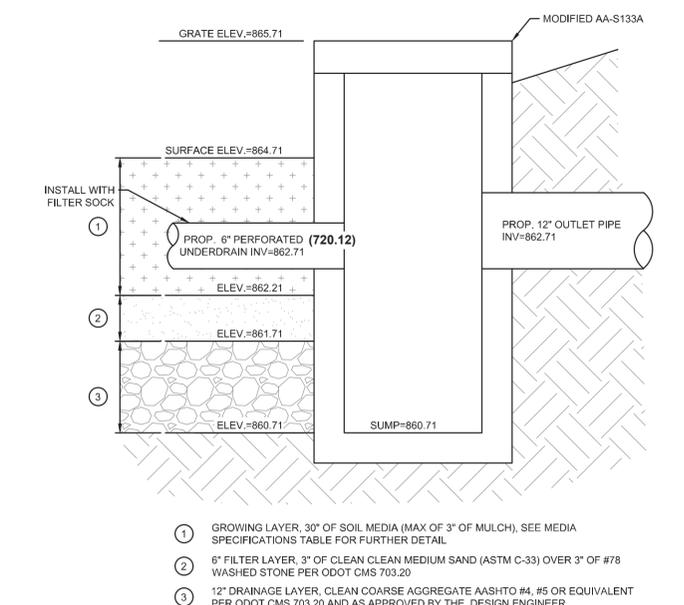
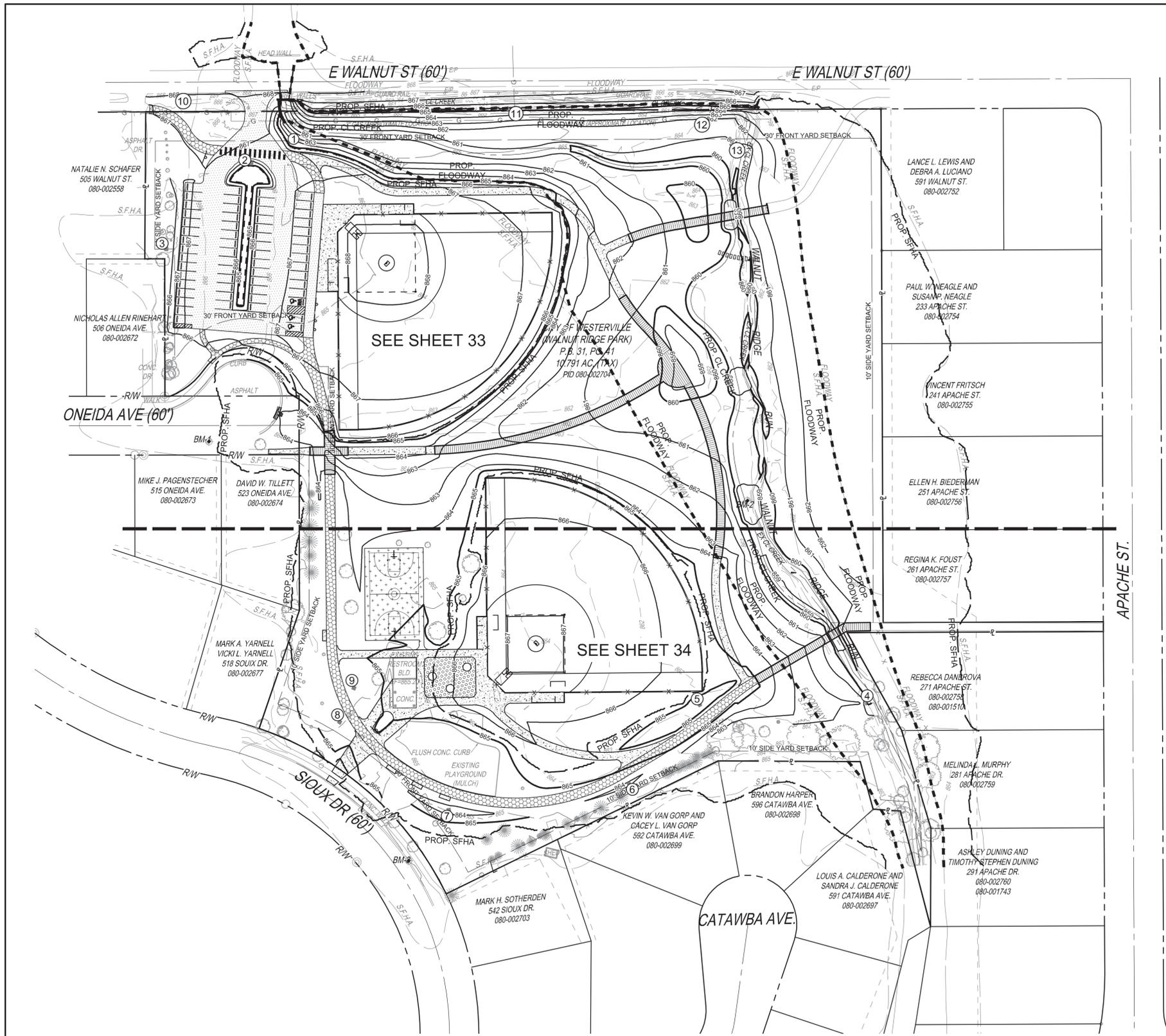
SCALE:
 H: 1" = 30'
 V: 1" = 5'

WALNUT RIDGE PARK IMPROVEMENTS

STORM SEWER PROFILES

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 2024-004

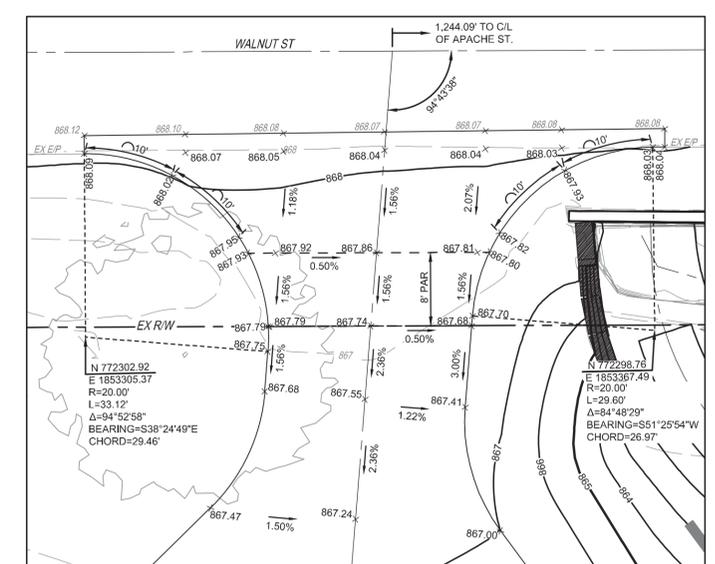
31
41



- ① GROWING LAYER, 30" OF SOIL MEDIA (MAX OF 3" OF MULCH). SEE MEDIA SPECIFICATIONS TABLE FOR FURTHER DETAIL.
- ② 6" FILTER LAYER, 3" OF CLEAN MEDIUM SAND (ASTM C-33) OVER 3" OF #78 WASHED STONE PER ODOT CMS 703.20.
- ③ 12" DRAINAGE LAYER, CLEAN COARSE AGGREGATE AASHTO #4, #5 OR EQUIVALENT PER ODOT CMS 703.20 AND AS APPROVED BY THE DESIGN ENGINEER.

BIORETENTION SOIL MEDIA SPECIFICATIONS - SEE COLS SS 1604	
USDA SOIL TEXTURE CLASSIFICATION	LOAMY SAND
CLAY CONTENT	THE MINERAL FRACTION OF THE MEDIA SHALL BE NO GREATER THAN 10 PERCENT CLAY PER USDA CLASSIFICATION (<0.002 MM) BY WEIGHT.
SAND CONTENT	THE MINERAL FRACTION OF THE MEDIA SHALL BE NO LESS THAN 80 PERCENT AND NO MORE THAN 90 PERCENT MEDIUM TO COARSE SAND PER USDA CLASSIFICATION (0.25 TO 1.0 MM) BY WEIGHT.
ORGANIC MATTER CONTENT	1.5 TO 5 PERCENT BY DRY WEIGHT AS DETERMINED BY PERCENT LOSS ON IGNITION (ASTM-D2974)
pH	5.5 TO 8.0
PHOSPHORUS	NOT TO EXCEED 40 MG/KG AS DETERMINED BY THE MEHLICH-3 TEST
SOLUBLE SALTS	500 PPM MAXIMUM (SOIL/WATER 1:2)
SATURATE HYDRAULIC CONDUCTIVITY (Ksat)	1-5 IN/HR PER ASTM F1815-06

① BIORETENTION BASIN DETAIL
N.T.S.



② DRIVEWAY DETAIL
SCALE: 1" = 10'

GENERAL NOTES
1. STOCKPILE ANY BOULDERS LARGER THAN 24" IN ANY DIMENSION, FOR REUSE IN STREAM CONSTRUCTION.

REVISIONS		
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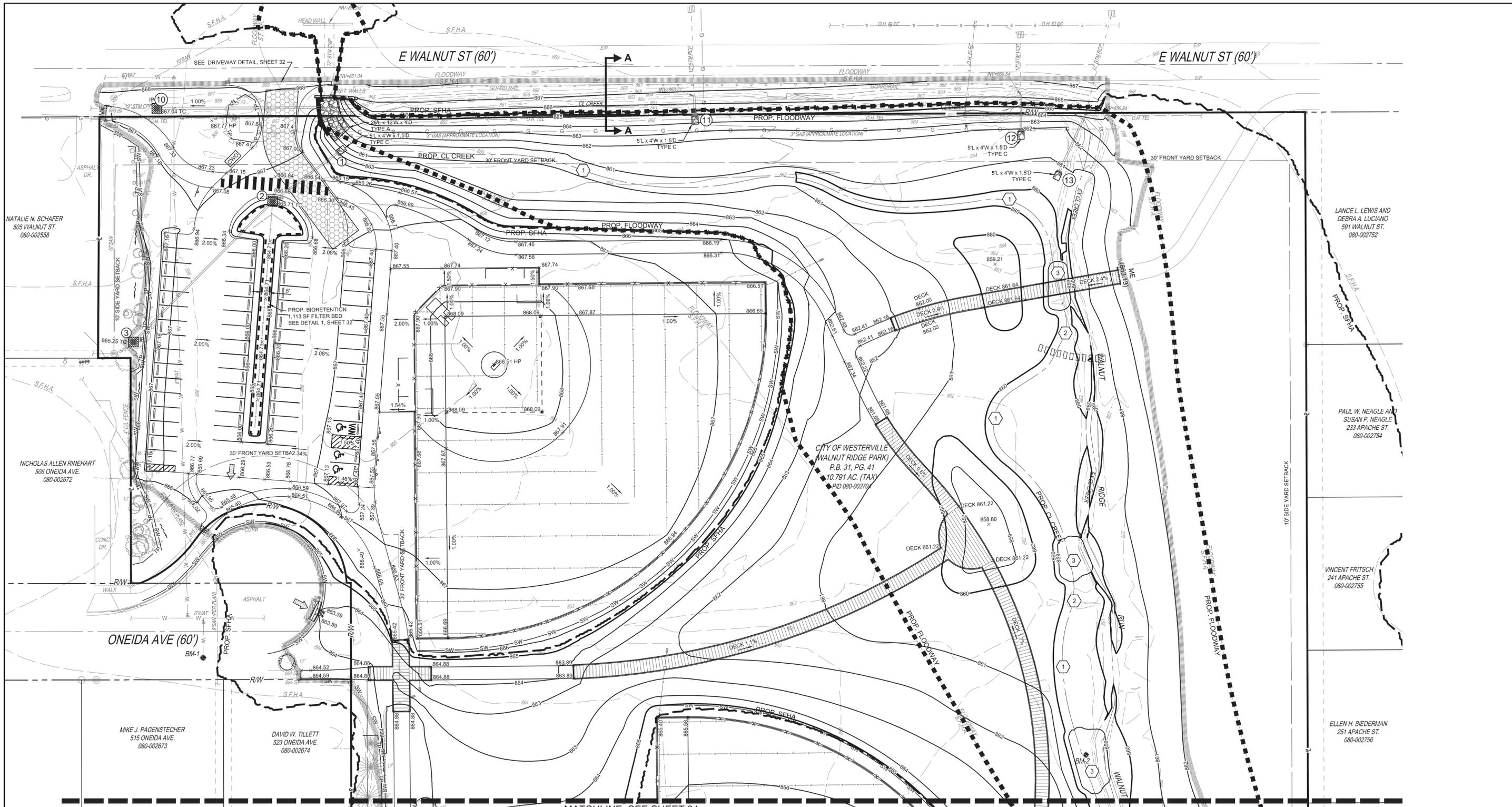
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SCALE:
1" = 60'

WALNUT RIDGE PARK IMPROVEMENTS

OVERALL GRADING PLAN

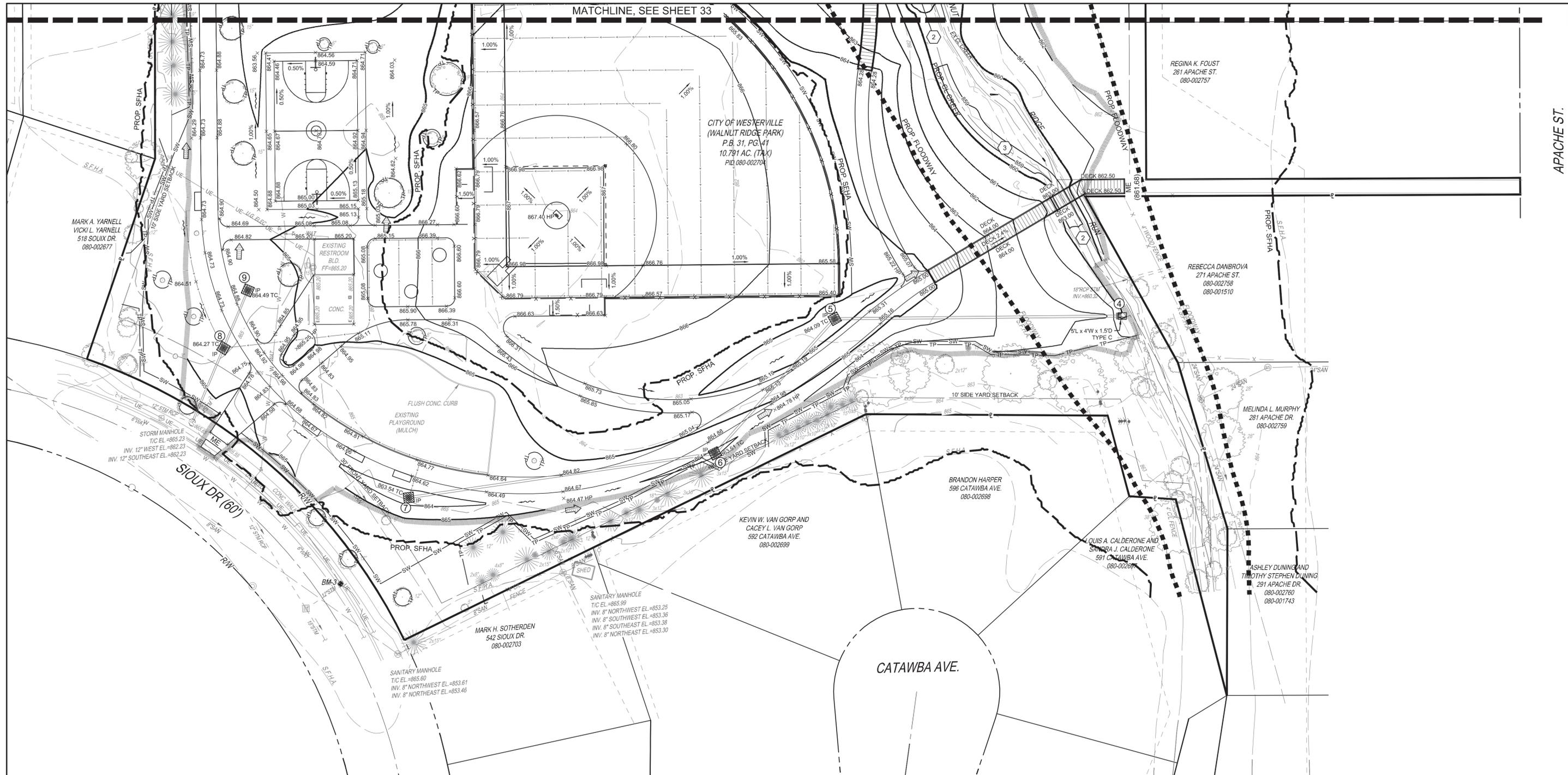
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E. WALNUT STREET TYPICAL GRADING SECTION A-A N.T.S.		CODED NOTES	EROSION CONTROL LEGEND	GRADING LEGEND	PROPOSED HIGH POINT ELEVATION
		1 STREAM GLIDE / RUN, SEE DETAIL 1 / SHEET 17 2 STREAM RIFFLE, SEE DETAILS 2 & 4 / SHEET 17 3 STREAM POOL, SEE DETAILS 3 & 4 / SHEET 17	ITEM 207 INLET PROTECTION, SEE DETAIL 1 / SHEET 36 ITEM 207 STRAW WATTLE, SEE DETAIL 2 / SHEET 36 ITEM 655 TREE PROTECTION, SEE DETAIL 2 / SHEET 37 ITEM 207 CONCRETE WASHOUT, SEE DETAIL 1 / SHEET 37 ITEM 207 CONSTRUCTION ENTRANCE, SEE DETAIL 3 / SHEET 37 ITEM 601 ROCK CHANNEL PROTECTION WITH FILTER, SEE DETAIL 3 / SHEET 36 LIMITS OF DISTURBANCE	EXISTING MAJOR CONTOUR EXISTING MINOR CONTOUR PROPOSED MAJOR CONTOUR PROPOSED MINOR CONTOUR PROPOSED SPOT ELEVATION	PROPOSED HIGH POINT ELEVATION PROPOSED TOP OF CASTING ELEVATION PROPOSED SWALE 100-YEAR FLOOD ROUTE MATCH EXISTING GRADE SPECIAL FLOOD HAZARD AREA

<table border="1"> <thead> <tr> <th>MARK</th> <th>DATE</th> <th>REVISIONS DESCRIPTION</th> </tr> </thead> <tbody> <tr> <td> </td> <td> </td> <td> </td> </tr> </tbody> </table>	MARK	DATE	REVISIONS DESCRIPTION				PLANS PREPARED BY: CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE www.kleingers.com 350 Worthington Rd Suite 14 Westerville, OH 43082 614.882.4311	SCALE: 1" = 30'	WALNUT RIDGE PARK IMPROVEMENTS	GRADING PLAN - NORTH	<div style="text-align: center;"> APPROVED 2024-004 </div>	<div style="text-align: center;"> 33 41 </div>
MARK	DATE	REVISIONS DESCRIPTION										

MATCHLINE, SEE SHEET 33



CODED NOTES

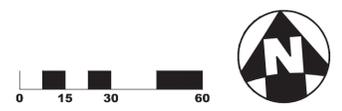
- 1 STREAM GLIDE / RUN, SEE DETAIL 1 / SHEET 17
- 2 STREAM RIFFLE, SEE DETAILS 2 & 4 / SHEET 17
- 3 STREAM POOL, SEE DETAILS 3 & 4 / SHEET 17

EROSION CONTROL LEGEND

- IP ITEM 207 INLET PROTECTION, SEE DETAIL 1 / SHEET 36
- sw ITEM 207 STRAW WATTLE, SEE DETAIL 2 / SHEET 36
- TP ITEM 655 TREE PROTECTION, SEE DETAIL 2 / SHEET 37
- CWO ITEM 207 CONCRETE WASHOUT, SEE DETAIL 1 / SHEET 37
- ITEM 207 CONSTRUCTION ENTRANCE, SEE DETAIL 3 / SHEET 37
- ITEM 601 ROCK CHANNEL PROTECTION WITH FILTER, SEE DETAIL 3 / SHEET 36
- LIMITS OF DISTURBANCE

GRADING LEGEND

- 1215- EXISTING MAJOR CONTOUR
- 1216- EXISTING MINOR CONTOUR
- 1215- PROPOSED MAJOR CONTOUR
- 1216- PROPOSED MINOR CONTOUR
- 1215.00 x PROPOSED SPOT ELEVATION
- 1215.00 HP x PROPOSED HIGH POINT ELEVATION
- 1215.00 TC x PROPOSED TOP OF CASTING ELEVATION
- PROPOSED SWALE
- 100-YEAR FLOOD ROUTE
- ME MATCH EXISTING GRADE
- SFHA SPECIAL FLOOD HAZARD AREA



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SCALE:
 1" = 30'

WALNUT RIDGE PARK IMPROVEMENTS

GRADING PLAN - SOUTH

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 2024-004

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 41

PROJECT DATA

PROJECT DESCRIPTION

THIS PROJECT INVOLVES THE REDEVELOPMENT OF AN EXISTING PARK, INCLUDING A PARKING LOT, BALLFIELDS, AND WALKING TRAILS. WALNUT RIDGE RUN WILL BE RELOCATED AS PART OF THE PROJECT TO IMPROVE CONVEYANCE OF THE STREAM, ENHANCE WATER QUALITY THROUGH THE USE OF VERNAL POOLS, AND ISOLATE THE FLOODPLAIN OUTSIDE OF RECREATION FACILITIES.

LATITUDE: N 40.118898°
LONGITUDE: W 82.910909°
ESTIMATED CONSTRUCTION DATES: 04/01/2026 - 04/01/2027

TOTAL SITE AREA: 10.791 ACRES
TOTAL DISTURBED AREA: 9.124 ACRES

EXISTING IMPERVIOUS AREA: 1.465 ACRES
PROPOSED IMPERVIOUS AREA: 1.355 ACRES
TOTAL IMPERVIOUS AREA AFTER CONSTRUCTION: 1.355 ACRES
INCREASE IN IMPERVIOUS AREA: (7.51%)

PRE-CONSTRUCTION RUNOFF COEFFICIENT : C=0.47
POST-CONSTRUCTION RUNOFF COEFFICIENT: C=0.47

IMMEDIATE RECEIVING WATERMS4: WALNUT RIDGE RUN
ULTIMATE RECEIVING STREAM: ALUM CREEK

EXISTING LAND USE: PARK
SOILS: C**b**B - CARDINGTON-URBAN LAND COMPLEX, 2 TO 6 PERCENT SLOPES
P**n** - PEWAMO LOW CARBONATE TILL-URBAN LAND COMPLEX 0 TO 2 PERCENT SLOPES

CONSTRUCTION SEQUENCE

TO COMPLETE THE EXCAVATION AND CONSTRUCTION OF THE PROPOSED IMPROVEMENTS, COORDINATION OF THE CONTRACTOR'S WORK CREWS WILL BE REQUIRED. THE INLET PROTECTION AND PERIMETER CONTROLS WILL PERFORM TEMPORARY SEDIMENT CONTROL AND STORAGE DURING THE PROPOSED CONSTRUCTION. WORK WILL GENERALLY PROCEED FROM DOWNSTREAM TO UPSTREAM IN THESE WORK AREAS. THE GENERAL CONSTRUCTION SEQUENCE IS AS FOLLOWS.

- INSTALL CONSTRUCTION ENTRANCE, CONCRETE WASHOUT AREA, TREE PROTECTION, PERIMETER CONTROLS AND INLET PROTECTION ON EXISTING STRUCTURES.
- STRIP AND STOCKPILE TOPSOIL AND ANY UNSUITABLE MATERIAL THROUGH THE INCREMENTAL WORK AREA. MAINTAIN STOCKPILES WITH TEMPORARY SEEDING. INSTALL ALL TEMPORARY SEDIMENT CONTROLS WITHIN 24 HOURS FOLLOWING THE STRIPPING OPERATION.
- PERFORM MASS GRADING FOR PAVED AREAS.
- INSTALL SITE UTILITIES AND INLET PROTECTION ON NEW STORM STRUCTURES AS WORK PROGRESSES. ANY DISTURBED AREAS SHALL BE STABILIZED PER OEPA TEMPORARY AND PERMANENT STABILIZATION.
- INSTALL FINAL PAVING AND WALKS.
- PROVIDE PERMANENT STABILIZATION FOR ANY DISTURBED AREAS AND REMOVE TEMPORARY SEDIMENT CONTROLS, PERIMETER CONTROLS, AND INLET PROTECTION.
- MAINTAIN POST CONSTRUCTION BMPs AS REQUIRED.

EMERGENCY ACTION & SPILL PREVENTION PLAN

THE SCOPE OF WORK COVERED BY THIS PLAN INCLUDES EMERGENCY RESPONSE TO SPILLS, CONTAINMENT OF SPILLED LIQUIDS, EMERGENCY NOTIFICATION NUMBERS, AND SOIL EXCAVATION FOR SPILL CLEAN-UP.

IN THE EVENT OF A SPILL EVENT THE EMPLOYEE SHALL ASSESS THE SPILL AND IMMEDIATELY NOTIFY THE SAFETY OFFICER AND SUPERVISOR IN CHARGE.

ALL SPILLS SHALL BE CLEANED UP IMMEDIATELY AFTER DISCOVERY. MANUFACTURERS' RECOMMENDED METHODS FOR SPILL CLEANUP POSTED AND SITE PERSONNEL WILL BE MADE AWARE OF THE PROCEDURES AND THE LOCATION OF THE INFORMATION AND CLEANUP SUPPLIES.

MATERIALS AND EQUIPMENT NECESSARY FOR SPILL CLEANUP WILL BE KEPT IN THE MATERIAL STORAGE AREA ONSITE. EQUIPMENT AND MATERIALS WILL INCLUDE BUT NOT BE LIMITED TO BROOMS, DUST PANS, MOPS, RAGS, GLOVES, GOGGLES, KITTY LITTER, SAND, SAWDUST, AND PLASTIC AND METAL TRASH CONTAINERS SPECIFICALLY FOR THIS PURPOSE.

THE SPILL AREA WILL BE KEPT WELL VENTILATED AND PERSONNEL WILL WEAR APPROPRIATE PROTECTIVE CLOTHING TO PREVENT INJURY FROM CONTACT WITH A HAZARDOUS SUBSTANCE.

SPILLS OF TOXIC OR HAZARDOUS MATERIAL WILL BE REPORTED TO THE APPROPRIATE STATE OR LOCAL GOVERNMENT AGENCY, REGARDLESS OF THE SIZE. SPILLS OF 25 OR MORE GALLONS OF PETROLEUM WASTE MUST BE REPORTED TO OHIO EPA (1-800-282-9378), THE LOCAL FIRE DEPARTMENT, AND THE LOCAL EMERGENCY PLANNING COMMITTEE WITHIN 30 MINUTES OF THE SPILL. ALL SPILLS, WHICH RESULT IN CONTACT WITH WATERS OF THE STATE, MUST BE REPORTED TO THE OHIO EPA'S HOTLINE.

SOILS CONTAMINATED BY PETROLEUM OR OTHER CHEMICAL SPILLS MUST BE TREATED/DISPOSED AT AN OHIO EPA APPROVED SOLID WASTE MANAGEMENT FACILITY OR HAZARDOUS WASTE TREATMENT, STORAGE OR DISPOSAL FACILITY (TSDF).

THE SPILL PREVENTION PLAN WILL BE ADJUSTED TO INCLUDE MEASURES TO PREVENT THIS TYPE OF SPILL FROM REOCCURRING AND HOW TO CLEAN UP THE SPILL IF THERE IS ANOTHER ONE. A DESCRIPTION OF THE SPILL, WHAT CAUSED IT, AND THE CLEANUP MEASURES WILL ALSO BE INCLUDED.

THE SITE SUPERINTENDENT RESPONSIBLE FOR THE DAY-TO-DAY SITE OPERATIONS, WILL BE THE SPILL PREVENTION AND CLEANUP COORDINATOR AND DESIGNATE SITE PERSONNEL WHO WILL RECEIVE SPILL PREVENTION AND CLEANUP TRAINING. THESE INDIVIDUALS WILL EACH BECOME RESPONSIBLE FOR A PARTICULAR PHASE OF PREVENTION AND CLEANUP. THE NAMES OF RESPONSIBLE SPILL PERSONNEL WILL BE POSTED IN THE MATERIAL STORAGE AREA AND IN THE OFFICE TRAILER ONSITE.

THE FOLLOWING ARE THE MATERIAL MANAGEMENT PRACTICES THAT WILL BE USED TO REDUCE THE RISK OF SPILLS OR OTHER ACCIDENTAL EXPOSURE OF MATERIALS AND SUBSTANCES TO STORM WATER RUNOFF.

GOOD HOUSEKEEPING:

- AN EFFORT WILL BE MADE TO STORE ONLY ENOUGH PRODUCT REQUIRED TO DO THE JOB.
- ALL MATERIALS STORED ONSITE WILL BE STORED IN A NEAT, ORDERLY MANNER IN THEIR APPROPRIATE CONTAINERS AND, IF POSSIBLE, UNDER A ROOF OR OTHER ENCLOSURE.
- PRODUCTS WILL BE KEPT IN THEIR ORIGINAL CONTAINERS WITH THE ORIGINAL MANUFACTURER'S LABEL.
- SUBSTANCES WILL NOT BE MIXED WITH ONE ANOTHER UNLESS RECOMMENDED BY THE MANUFACTURER.
- WHENEVER POSSIBLE, ALL OF A PRODUCT WILL BE USED UP BEFORE DISPOSING OF THE CONTAINER.
- MANUFACTURERS' RECOMMENDATIONS FOR PROPER USE AND DISPOSAL WILL BE FOLLOWED.
- THE SITE SUPERINTENDENT WILL INSPECT DAILY TO ENSURE PROPER USE AND DISPOSAL OF MATERIALS ONSITE.

HAZARDOUS PRODUCTS:

- PRODUCTS WILL BE KEPT IN ORIGINAL CONTAINERS UNLESS THEY ARE NOT RESEALABLE.
- ORIGINAL LABELS AND MATERIAL SAFETY DATA WILL BE RETAINED; THEY CONTAIN IMPORTANT PRODUCT INFORMATION.
- IF SURPLUS PRODUCT MUST BE DISPOSED OF, MANUFACTURERS' OR LOCAL AND STATE RECOMMENDED METHODS FOR PROPER DISPOSAL WILL BE FOLLOWED.

GENERAL NOTES

THE CONTRACTOR IS HEREBY ADVISED THAT STRICTER POLLUTION CONTROL STANDARDS AND ENFORCEMENT HAVE BEEN IMPOSED BY THE OHIO EPA SINCE MARCH 10, 2003 AND WITH REVISIONS IN APRIL 2018 AND IN APRIL 2023. ALSO, MANY PRIVATE CITIZEN ENVIRONMENTAL GROUPS, WHO HAVE BEEN KNOWN TO FILE CIVIL LEGAL ACTIONS, ARE PRESENT IN THE AREA AND OBSERVE ALL CONSTRUCTION OPERATIONS.

THE CONTRACTOR SHALL INFORM ALL SUBCONTRACTORS OF THE REQUIREMENTS AND RESPONSIBILITIES OF THE SWPPP AND SHALL DOCUMENT ALL SUCH NOTIFICATIONS AND/OR DISCUSSIONS.

THE CONTRACTOR WILL BE REQUIRED TO PARTICIPATE IN SEDIMENT AND EROSION CONTROL INSPECTIONS ON A WEEKLY BASIS AND SIGN AN APPROVED INSPECTION SHEET THAT SHALL BE KEPT ON FILE AT THE JOB SITE.

UNLESS OTHERWISE NOTED, STANDARDS AND SPECIFICATIONS ESTABLISHED IN THE LATEST EDITION OF THE OEPA "RAINWATER AND LAND DEVELOPMENT" HANDBOOK SHALL GOVERN THE EROSION AND SEDIMENT CONTROL INSTALLATIONS SPECIFIED ON THIS PLAN.

THIS PROJECT WILL INVOLVE SEVERAL CONSTRUCTION PHASES AND SEQUENCING THROUGHOUT ITS LIFETIME. IT IS VERY IMPORTANT THAT ALL TEMPORARY SEDIMENT AND EROSION CONTROL (S&E) FIELD METHODS ALONG WITH THIS PLAN, ARE UPDATED TO REFLECT THE ACTUAL FIELD

CONDITIONS, CURRENT WEATHER CONDITIONS AND SITE GRADE CHANGES. THE ENGINEER OR THE OHIO EPA CAN AND WILL MODIFY THIS PLAN AS NECESSARY.

THE CONTRACTOR WILL VOLUNTARILY SELF REPORT ANY POTENTIAL VIOLATIONS OF THE OEPA NPDES PERMIT TO THE ENGINEER AND THE OEPA.

THE CONTRACTOR SHALL REMOVE EXISTING GROUND COVER ONLY AS NECESSARY FOR THE PROJECT PHASE CURRENTLY UNDER CONSTRUCTION.

CONSTRUCTION AND DEMOLITION DEBRIS SHALL BE PROPERLY DISPOSED OF ACCORDING TO OHIO EPA REQUIREMENTS.

THERE SHALL BE NO TURBID DISCHARGES TO SURFACE WATERS, RESULTING FROM DEWATERING ACTIVITIES. SEDIMENT-LADEN WATER MUST PASS THROUGH A SETTLING POND, FILTER BAG, OR OTHER COMPARABLE PRACTICE, PRIOR TO DISCHARGE.

NO SOLID OR LIQUID WASTE SHALL BE DISCHARGED INTO STORM WATER RUNOFF.

ALL PROCESS WASTEWATER (EQUIPMENT WASHING, LEACHATE FROM ON-SITE WASTE DISPOSAL, ETC.) SHALL BE COLLECTED AND DISPOSED OF AT A PUBLICLY OWNED TREATMENT WORKS.

ALL CONSTRUCTION ACTIVITIES MUST COMPLY WITH ALL LOCAL EROSION/SEDIMENT CONTROL, WASTE DISPOSAL, SANITARY AND HEALTH REGULATIONS.

OTHER EROSION CONTROL ITEMS MAY BE NECESSARY DUE TO ENVIRONMENTAL CONDITIONS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLATION AND IMPLEMENTATION OF ADDITIONAL EROSION CONTROL ITEMS, AT THE ENGINEER'S DISCRETION.

NO SOIL, ROCK, DEBRIS OR OTHER MATERIAL SHALL BE DUMPED OR PLACED IN ANY AREAS NOT ADEQUATELY PROTECTED BY EROSION CONTROL INSTALLATIONS.

IT IS PREFERRED TO USE PERMANENT EROSION CONTROL ITEMS AS SHOWN IN THE PLANS TO CONTROL CONSTRUCTION POLLUTION WHEN POSSIBLE. OTHERWISE, THE TEMPORARY POLLUTION PREVENTION ITEMS ARE TO BE USED.

MOST TEMPORARY S&E METHODS, INCLUDING BUT NOT LIMITED TO, SILT FENCE AND DITCH CHECKS MAY ALL HAVE TO BE PERIODICALLY REMOVED AND REPLACED, OR MOVED FROM THE EXISTING ROAD DITCH OR STRIPPED AREAS AS WORK PROGRESSES. ANY CHANGES SHALL BE NOTED IN THE PLAN BY RED LINE AND DATED ON A CORRECTIVE ACTION LOG.

ALL TEMPORARY SEDIMENT CONTROLS AND STORM WATER QUALITY METHODS WILL BE BUILT/INSTALLED AS THE PROJECT PROGRESSES TO ELIMINATE UNNECESSARY DISTURBANCE AND REDUNDANCY. ALL TEMPORARY CONTROLS SHALL BE IN PLACE AND FUNCTIONING PROPERLY WHEN THREATENING WEATHER IS IMMINENT.

"TEMPORARY STABILIZATION" MEANS THE ESTABLISHMENT OF TEMPORARY VEGETATION, MULCHING, GEOTEXTILES, SOD, PRESERVATION OF EXISTING VEGETATION AND OTHER TECHNIQUES CAPABLE OF QUICKLY ESTABLISHING COVER OVER DISTURBED AREAS TO PROVIDE EROSION CONTROL BETWEEN CONSTRUCTION OPERATIONS.

"PERMANENT STABILIZATION" MEANS THE ESTABLISHMENT OF PERMANENT VEGETATION, DECORATIVE LANDSCAPE MULCHING, MATTING, SOD, RIP RAP AND LANDSCAPING TECHNIQUES TO PROVIDE PERMANENT EROSION CONTROL ON AREAS WHERE CONSTRUCTION OPERATIONS ARE COMPLETE OR WHERE NO FURTHER DISTURBANCE IS EXPECTED FOR AT LEAST A YEAR.

OFF-SITE TRACKING OF SEDIMENTS SHALL BE MINIMIZED. A STABILIZED CONSTRUCTION ENTRANCE WILL BE PROVIDED TO HELP REDUCE VEHICLE TRACKING OF SEDIMENTS. ALL PAVED STREETS ADJACENT TO THE SITE WILL BE SWEEPED DAILY TO REMOVE ANY EXCESS MUD, DIRT OR ROCK TRACKED FROM THE SITE. DUMP TRUCKS HAULING MATERIAL FROM THE CONSTRUCTION SITE WILL BE COVERED WITH A TARP.

STABILIZATION PRACTICES

PERMANENT SEEDING AND MULCHING STABILIZATION SHALL BE PROVIDED PER OEPA GUIDELINES AS SET FORTH IN PART II.B OF OHIO EPA PERMIT NO.: OHC000006. (SEE TABLE 1)

TABLE 1: PERMANENT STABILIZATION	
AREA REQUIRING PERMANENT STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY AREAS THAT WILL LIE DORMANT FOR ONE YEAR OR MORE	WITHIN SEVEN DAYS OF THE MOST RECENT DISTURBANCE
ANY AREAS WITHIN 50 FEET OF A SURFACE WATER OF THE STATE AND AT FINAL GRADE	WITHIN TWO DAYS OF REACHING FINAL GRADE
ANY OTHER AREAS AT FINAL GRADE	WITHIN SEVEN DAYS OF REACHING FINAL GRADE WITHIN THAT AREA

TEMPORARY SEEDING AND MULCHING STABILIZATION SHALL BE PROVIDED PER OEPA GUIDELINES AS SET FORTH IN PART II.B OF OHIO EPA PERMIT NO.: OHC000006. (SEE TABLE 2)

TABLE 2: TEMPORARY STABILIZATION	
AREA REQUIRING TEMPORARY STABILIZATION	TIME FRAME TO APPLY EROSION CONTROLS
ANY DISTURBED AREAS WITH 50 FEET OF A SURFACE WATER OF THE STATE AND NOT AT FINAL GRADE	WITHIN TWO DAYS OF THE MOST RECENT DISTURBANCE IF THE AREA WILL REMAIN IDLE FOR MORE THAN 14 DAYS
FOR ALL CONSTRUCTION ACTIVITIES, ANY DISTURBED AREAS THAT WILL BE DORMANT FOR MORE THAN 14 DAYS BUT LESS THAN ONE YEAR, AND NOT WITHIN 50 FEET OF A SURFACE WATER OF THE STATE	FOR RESIDENTIAL SUBDIVISIONS, DISTURBED AREAS MUST BE STABILIZED AT LEAST SEVEN DAYS PRIOR TO TRANSFER OF PERMIT COVERAGE FOR THE INDIVIDUAL LOT(S).
DISTURBED AREAS THAT WILL BE IDLE OVER WINTER	PRIOR TO THE ONSET OF WINTER WEATHER

ALL TEMPORARY EROSION AND SEDIMENT CONTROL INSTALLATIONS SHALL BE REMOVED WHEN 70% VEGETATION HAS BEEN REACHED.

SEEDING & MULCHING

MULCH AND/OR OTHER APPROPRIATE VEGETATIVE PRACTICES SHALL BE APPLIED TO DISTURBED AREAS WITHIN 7 DAYS OF GRADING IF THE AREA IS TO REMAIN DORMANT (UNDISTURBED) FOR MORE THAN 14 DAYS OR ON AREAS AND PORTIONS OF THE SITE WHICH CAN BE BROUGHT TO FINAL GRADE.

MULCH SHALL CONSIST OF UNROTTED SMALL GRAIN STRAW APPLIED AT THE RATE OF 2 TONS/AC, OR 90 LB./1000 SQ. FT. (TWO TO THREE BALES). THE STRAW MULCH SHALL BE SPREAD UNIFORMLY BY HAND OR MECHANICALLY SO THE SOIL SURFACE IS COVERED. FOR UNIFORM DISTRIBUTION OF HAND-SPREAD MULCH, DIVIDE AREA INTO APPROXIMATELY 1000-SQ.-FT. SECTIONS AND PLACE TWO 45-LB. BALES OF STRAW IN EACH SECTION.

MULCH SHALL BE ANCHORED IMMEDIATELY TO MINIMIZE LOSS BY WIND OR RUNOFF. THE FOLLOWING ARE ACCEPTABLE METHODS FOR ANCHORING MULCH:

- MECHANICAL-USE A DISK, CRIMPER, OR SIMILAR TYPE TOOL SET STRAIGHT TO PUNCH OR ANCHOR THE MULCH MATERIAL INTO THE SOIL. STRAW MECHANICALLY ANCHORED SHALL NOT BE FINELY CHOPPED BUT BE LEFT GENERALLY LONGER THAN 6 IN.
- MULCH NETTINGS-USE ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS, FOLLOWING ALL PLACEMENT AND ANCHORING SUGGESTIONS. USE IN AREAS OF WATER CONCENTRATION AND STEEP SLOPES TO HOLD MULCH IN PLACE.
- SYNTHETIC BINDERS-FOR STRAW MULCH, SYNTHETIC BINDERS SUCH AS ACRYLIC DLR (AGRI-TAC), DCA-70, PETROSET, TERRA TACK OR EQUAL MAY BE USED AT RATES RECOMMENDED BY THE MANUFACTURER. ALL APPLICATIONS OF SYNTHETIC BINDERS MUST BE CONDUCTED IN SUCH A MANNER WHERE THERE IS NO CONTACT WITH WATERS OF THE STATE.
- WOOD CELLULOSE FIBER - WOOD CELLULOSE FIBER MAY BE USED FOR ANCHORING STRAW. THE FIBER BINDER SHALL BE APPLIED AT A NET DRY WEIGHT OF 750 LB./ACRE. THE WOOD CELLULOSE FIBER SHALL BE MIXED WITH WATER AND THE MIXTURE SHALL CONTAIN A MAXIMUM OF 50 LB./100 GAL. OF WOOD CELLULOSE FIBER.

TEMPORARY SEEDING & MULCHING FOR EROSION CONTROL		
SEED TYPE	PER 1,000 SQ FT	PER ACRE
PERENNIAL RYEGRASS	1 POUND	40 POUNDS
TALL FESCUE	1 POUND	40 POUNDS
ANNUAL RYEGRASS	1 POUND	40 POUNDS
SMALL GRAIN STRAW	90 POUNDS	2 TONS
FERTILIZER	6 POUNDS OF 10-10-10 OR 12-12-12	250 POUNDS OF 10-10-10 OR 12-12-12

NOTE: OTHER APPROVED SPECIES MAY BE SUBSTITUTED

STOCKPILE

SILT FENCING SHALL BE INSTALLED AROUND TEMPORARY SPOIL STOCKPILES. THESE STOCKPILES SHALL BE STRAW MULCHED AND/OR TEMPORARILY SEEDED WITHIN 7 WORKING DAYS IF LEFT DORMANT FOR 14 DAYS OR LONGER.

TIMING OF CONTROLS/MEASURES

AS INDICATED IN THE SEQUENCE OF MAJOR ACTIVITIES, CONSTRUCTION ENTRANCE(S) AND SILT FENCE WILL BE CONSTRUCTED PRIOR TO CLEARING OR GRADING OF ANY OTHER PORTIONS OF THE SITE. SEDIMENT CONTROL DEVICES SHALL BE IMPLEMENTED FOR ALL AREAS REMAINING DISTURBED LONGER THAN 14 DAYS AND/OR WITHIN 7 DAYS OF ANY GRUBBING ACTIVITIES. AREAS WHERE CONSTRUCTION ACTIVITY TEMPORARILY CEASES FOR MORE THAN 14 DAYS WILL BE STABILIZED WITH A TEMPORARY SEED AND MULCH WITHIN 2 DAYS OF THE LAST DISTURBANCE IF THE AREA IS WITHIN 50 FEET OF A STREAM, AND WITHIN 7 DAYS OF THE LAST DISTURBANCE IF THE AREA IS MORE THAN 50 FEET AWAY FROM A STREAM. ONCE CONSTRUCTION ACTIVITY CEASES PERMANENTLY IN AN AREA, THAT AREA WILL BE STABILIZED WITH PERMANENT SEED AND MULCH. AFTER THE ENTIRE SITE IS STABILIZED, THE ACCUMULATED SEDIMENT WILL BE REMOVED FROM THE BASIN.

STABILIZATION TYPE	J	F	M	A	M	J	J	A	S	O	N	D
PERMANENT SEEDING			•	•	•	*	*	*	•	•		
DORMANT SEEDING	•	•	•	•	•	•	•	•	•	•	•	•
TEMPORARY SEEDING			•	•	•	*	*	*	•	•		
SODDING			**	**	**	**	**	**	**	**		
MULCHING	•	•	•	•	•	•	•	•	•	•	•	•

* IRRIGATION NEEDED

** IRRIGATION NEEDED FOR 2-3 WEEKS AFTER SOD IS APPLIED

INSPECTIONS

ALL BMPs ON THIS SITE SHALL BE INSPECTED BY "QUALIFIED INSPECTION PERSONNEL" ASSIGNED BY THE CONTRACTOR OR DESIGNATED REPRESENTATIVE AT LEAST ONCE EVERY SEVEN CALENDAR DAYS AND BY THE END OF THE NEXT CALENDAR DAY, EXCLUDING WEEKENDS AND HOLIDAYS UNLESS WORK IS SCHEDULED, AFTER A RAIN EVENT OF 0.5 INCHES PER 24 HOUR PERIOD. A RECORD OF THESE INSPECTIONS SHALL BE MAINTAINED IN THE CONSTRUCTION OFFICE WITH THE SWPPP FOR PUBLIC VIEWING. ANY VIOLATIONS WILL BE REPORTED THROUGH THE PROJECT PERSONNEL. A RAIN GAUGE WILL BE LOCATED WITHIN THE PROJECT LIMITS.

FOLLOWING EACH INSPECTION, A CHECKLIST MUST BE COMPLETED AND SIGNED BY THE QUALIFIED INSPECTION PERSONNEL REPRESENTATIVE. AT A MINIMUM, THE INSPECTION REPORT SHALL INCLUDE:

- THE INSPECTION DATE;
- NAMES, TITLES, AND QUALIFICATIONS OF PERSONNEL MAKING THE INSPECTION;
- WEATHER INFORMATION FOR THE PERIOD SINCE THE LAST INSPECTION (OR SINCE COMMENCEMENT OF CONSTRUCTION ACTIVITY IF THE FIRST INSPECTION) INCLUDING A BEST ESTIMATE OF THE BEGINNING OF EACH STORM EVENT, DURATION OF EACH STORM EVENT, APPROXIMATE AMOUNT OF RAINFALL FOR EACH STORM EVENT (IN INCHES), AND WHETHER ANY DISCHARGES OCCURRED;
- WEATHER INFORMATION AND A DESCRIPTION OF ANY DISCHARGES OCCURRING AT THE TIME OF THE INSPECTION;
- LOCATION(S) OF DISCHARGES OF SEDIMENT OR OTHER POLLUTANTS FROM THE SITE;
- LOCATION(S) OF BMPs THAT NEED TO BE MAINTAINED;
- LOCATION(S) OF BMPs THAT FAILED TO OPERATE AS DESIGNED OR PROVED INADEQUATE FOR A PARTICULAR LOCATION;
- LOCATION(S) WHERE ADDITIONAL BMPs ARE NEEDED THAT DID NOT EXIST AT THE TIME OF INSPECTION; AND
- CORRECTIVE ACTION REQUIRED INCLUDING ANY CHANGES TO THE SWP'S NECESSARY AND IMPLEMENTATION DATES.

MAINTENANCE

THE CONTRACTOR SHALL MAINTAIN, REPAIR, OR REPLACE ALL EROSION CONTROL INSTALLATIONS AS NEEDED TO ENSURE THE CONTINUED PERFORMANCE OF THEIR INTENDED FUNCTION. ALL REPAIRS TO BMPs SHALL BE MADE WITHIN 3 DAYS (OR SOONER IF POSSIBLE) OF NOTIFICATION OF DEFICIENCIES. IF THE CORRECTIONS ARE NOT MADE WITHIN THE 3 DAY PERIOD, LIQUIDATED DAMAGES MAY BE ASSESSED AS PER THE ODOT CMS SECTION 108.07.

ONGOING INSPECTION OF INSTALLATIONS WILL BE PERFORMED BY THE CONTRACTOR OR DESIGNATED REPRESENTATIVE.

ANY TRAPPED SEDIMENT OR DEBRIS REMOVED DURING CLEANING OF OR REMOVAL OF BMP INSTALLATIONS SHALL BE PLACED IN AREAS NOT SUBJECT TO EROSION AND PERMANENTLY STABILIZED.

DUST CONTROL

DUST CONTROL INVOLVES PREVENTING OR REDUCING DUST FROM EXPOSED SOILS OR OTHER SOURCES DURING LAND DISTURBING, DEMOLITION AND CONSTRUCTION ACTIVITIES TO REDUCE THE PRESENCE OF AIRBORNE SUBSTANCES WHICH MAY PRESENT HEALTH HAZARDS, TRAFFIC SAFETY PROBLEMS OR HARM ANIMAL OR PLANT LIFE.

THE FOLLOWING SPECIFICATIONS FOR DUST CONTROL SHALL BE FOLLOWED ONSITE:

- VEGETATIVE COVER AND/MULCH - APPLY TEMPORARY OR PERMANENT SEEDING AND MULCH TO AREAS THAT WILL REMAIN IDLE FOR OVER 14 DAYS. SAVING EXISTING TREES AND LARGE SHRUBS WILL ALSO REDUCE SOIL AND AIR MOVEMENT ACROSS DISTURBED AREAS. SEE TEMPORARY SEEDING; PERMANENT SEEDING; MULCHING PRACTICES; AND TREE AND NATURAL AREA PROTECTION PRACTICES.
- WATERING - SPRAY SITE WITH WATER UNTIL THE SURFACE IS WET BEFORE AND DURING GRADING AND REPEAT AS NEEDED, ESPECIALLY ON HAUL ROADS AND OTHER HEAVY TRAFFIC ROUTES. WATERING SHALL BE DONE AT A RATE THAT PREVENTS DUST BUT DOES NOT CAUSE SOIL EROSION. WETTING AGENTS SHALL BE UTILIZED ACCORDING TO MANUFACTURERS' INSTRUCTIONS.
- SPRAY-ON ADHESIVES - APPLY ADHESIVE ACCORDING TO THE FOLLOWING TABLE OR MANUFACTURERS' INSTRUCTIONS.

ADHESIVE	WATER DILUTION (ADHESIVE: WATER)	NOZZLE TYPE	APPLICATION RATE (GAL/AC)
LATEX EMULSION	12.5:1	FINE	235
RESIN IN WATER ACRYLIC EMULSION (NO TRAFFIC)	4:1	FINE	300
ACRYLIC EMULSION (NO TRAFFIC)	7:1	COARSE	450
ACRYLIC EMULSION (TRAFFIC)	3.5:1	COARSE	350

PRODUCT SPECIFIC PRACTICES

PETROLEUM PRODUCTS

ALL ONSITE VEHICLES WILL BE MONITORED FOR LEAKS AND RECEIVE REGULAR PREVENTIVE MAINTENANCE TO REDUCE THE CHANCE OF LEAKAGE. PETROLEUM PRODUCTS WILL BE STORED IN TIGHTLY SEALED CONTAINERS WHICH ARE CLEARLY LABELED. ANY ASPHALT SUBSTANCES USED ONSITE WILL BE APPLIED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.

FUEL STORAGE TANKS SHALL BE LOCATED AWAY FROM SURFACE WATERS AND STORM SEWER SYSTEM INLETS. FUEL TANKS SHALL BE STORED IN A DIKED AREA CAPABLE OF HOLDING 150% OF THE TANK CAPACITY.

FERTILIZERS

FERTILIZERS USED WILL BE APPLIED ONLY IN THE MINIMUM AMOUNTS RECOMMENDED BY THE MANUFACTURER. ONCE APPLIED, FERTILIZER WILL BE WORKED INTO THE SOIL TO LIMIT EXPOSURE TO STORM WATER. STORAGE WILL BE IN A COVERED SHED. THE CONTENTS OF ANY PARTIALLY USED BAGS OF FERTILIZER WILL BE TRANSFERRED TO A SEALABLE PLASTIC BIN TO AVOID SPILLS.

PAINTS

ALL CONTAINERS WILL BE TIGHTLY SEALED AND STORED WHEN NOT REQUIRED FOR USE. EXCESS PAINT WILL NOT BE DISCHARGED TO THE STORM SEWER SYSTEM BUT WILL BE PROPERLY DISPOSED OF ACCORDING TO MANUFACTURERS' INSTRUCTIONS OR STATE AND LOCAL REGULATIONS.

CONCRETE WASH WATER/WASH OUTS

CONCRETE WASH WATER SHALL NOT BE ALLOWED TO FLOW TO STREAMS, DITCHES, STORM DRAINS, OR ANY OTHER WATER CONVEYANCE. A SUMP OR PIT WITH NO POTENTIAL FOR DISCHARGE SHALL BE CONSTRUCTED IF NEEDED TO CONTAIN CONCRETE WASH WATER. FIELD TILE OR OTHER SUBSURFACE DRAINAGE STRUCTURES WITHIN 10 FT. OF THE SUMP SHALL BE CUT AND PLUGGED. FOR SMALL PROJECTS, TRUCK CHUTES MAY BE RINSED ON THE LOT AWAY FROM ANY WATER CONVEYANCES.

REVISIONS		
MARK	DATE	DESCRIPTION

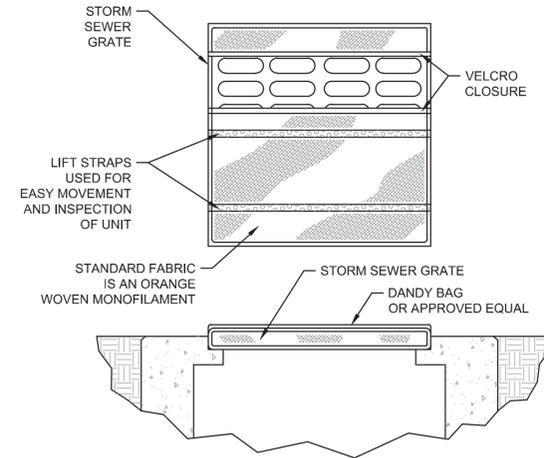
PLANS PREPARED BY:	CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE www.kleingers.com 350 Worthington Rd Suite 11 Westerville, OH 43082 614.682.4311
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SCALE:	N.T.S.
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WALNUT RIDGE PARK IMPROVEMENTS	
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EROSION CONTROL NOTES	
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APPROVED	35
2024-004	41



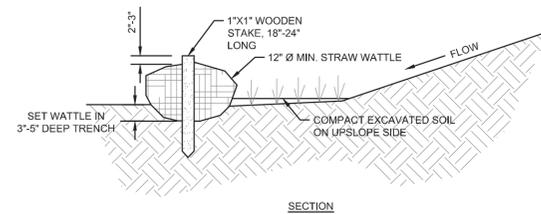
SPECIFICATIONS

MECHANICAL PROPERTIES	TEST METHOD	UNITS	MARV
GRAB TENSILE STRENGTH	ASTM D 4632	KN (LBS)	1.62 (365) X 0.89 (200)
GRAB TENSILE ELONGATION	ASTM D 4632	%	24 X 10
PUNCTURE STRENGTH	ASTM D 4833	KN (LBS)	0.40 (90)
MULLEN BURST STRENGTH	ASTM D 3786	KPA (PSI)	3097 (450)
TRAPEZOID TEAR STRENGTH	ASTM D 4533	KN (LBS)	0.51 (115) X 0.33 (75)
UV RESISTANCE	ASTM D 4355	%	90
APPARENT OPENING SIZE	ASTM D 4751	MM (US STD SIEVE)	0.425 (40)
FLOW RATE	ASTM D 4491	1/MIN/M ² (GAL/MIN/FT ²)	5907 (145)
PERMITTIVITY	ASTM D 4491	SEC	2.1

INSTALLATION: THE EMPTY DANDY BAG SHOULD BE PLACED OVER THE GRATE AS THE GRATE STANDS ON END. IF USING OPTIONAL OIL ABSORBENTS: PLACE ABSORBENT PILLOW IN POUCH, ON THE BOTTOM (BELOW-GRADE SIDE) OF THE UNIT. ATTACH ABSORBENT PILLOW TO TETHER LOOP. TUCK THE ENCLOSURE FLAP INSIDE TO COMPLETELY ENCLOSE THE GRATE. HOLDING THE LIFTING DEVICES (DO NOT RELY ON LIFTING DEVICES TO SUPPORT THE ENTIRE WEIGHT OF THE GRATE), PLACE THE GRATE INTO ITS FRAME.

MAINTENANCE: REMOVE ALL ACCUMULATED SEDIMENT AND DEBRIS FROM SURFACE AND VICINITY OF UNIT AFTER EACH STORM EVENT. REMOVE SEDIMENT THAT HAS ACCUMULATED WITHIN THE CONTAINMENT AREA OF THE DANDY BAG AS NEEDED. IF USING OPTIONAL OIL ABSORBENTS; REMOVE AND REPLACE ABSORBENT PILLOW WHEN NEAR SATURATION.

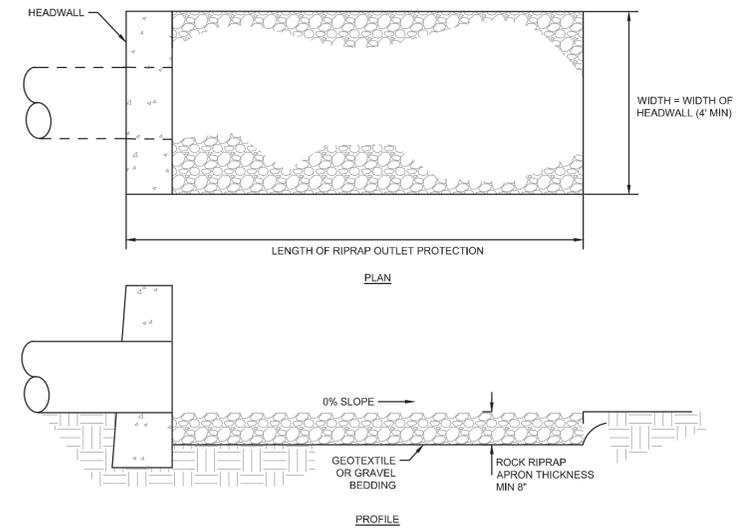
1 INLET PROTECTION - DANDY BAG
N.T.S.



NOTES:

- MATERIALS – WATTLE SHALL BE COMPOSED OF 100% WEED FREE AGRICULTURAL STRAW AND/OR COCONUT FIBER BE WRAPPED IN TUBULAR UV STABILIZED SYNTHETIC NET.
- THE NETTING WEIGHT SHALL BE APPROXIMATELY 0.35 OUNCES/LINEAR FT. AND SHALL BE MADE FROM HDPE (HIGH DENSITY POLYETHYLENE) PHOTODEGRADABLE ORIENTED NET WITH UV INHIBITION. THE NETTING SHALL HAVE A DIAMOND SHAPED APERTURE MEASURING 0.50 X 0.50 INCHES (1.27 X 1.27 CM).
- THE WATTLE ENDS WILL BE SECURED WITH CLOSURES.
- MINIMUM WATTLE DIAMETER IS 12 INCHES AND SHALL HAVE A MINIMUM WEIGHT OF 2.5 LBS/LF.
- INSTALLATION:
WATTLES WILL BE PLACED ON A LEVEL LINE ACROSS SLOPES. GENERALLY PARALLEL TO THE BASE OF THE SLOPE OR OTHER AFFECTED AREA. ON SLOPES APPROACHING 2:1, ADDITIONAL WATTLES SHALL BE PROVIDED AT THE TOP AND AS NEEDED MIDSLOPE.
- USE A HAND TOOL SUCH AS A MADDOX OR PICK TO SCORE THE GROUND. USING A SHOVEL, DIG THE TRENCH TO THE NEEDED DEPTH. SOIL FROM EXCAVATING THE TRENCHES CAN BE PLACED ON THE UPHILL, OR FLOW SIDE, OF THE TRENCH TO BE USED DURING INSTALLATION.
- LAY THE FIRST STRAW WATTLE SNUGLY IN THE TRENCH. NO DAYLIGHT SHOULD BE SEEN UNDER THE WATTLE. PACK SOIL FROM TRENCHING AGAINST THE WATTLE ON THE UPHILL SIDE. WHEN INSTALLING RUNNING LENGTHS OF STRAW WATTLES, BUTT THE SECOND WATTLE TIGHTLY AGAINST THE FIRST WATTLE. DO NOT OVERLAP THE ENDS ON TOP OF EACH OTHER. STAKE THE STRAW WATTLES AT EACH END AND 3-4 FEET ON CENTER.
- STAKES SHOULD BE DRIVEN THROUGH THE MIDDLE OF THE WATTLE, LEAVING 2-3 INCHES OF THE STAKE PROTRUDING ABOVE THE WATTLE. WHEN STRAW WATTLES ARE USED FOR FLAT GROUND APPLICATIONS, DRIVE THE STAKES STRAIGHT DOWN; WHEN INSTALLING WATTLES ON SLOPES, DRIVE THE STAKES PERPENDICULAR TO THE SLOPE.
- WATTLES ARE NOT TO BE USED IN CONCENTRATED FLOW SITUATIONS OR IN RUNOFF CHANNELS.
- ROUTINELY INSPECT WATTLES AFTER EACH SIGNIFICANT RAIN, MAINTAINING WATTLES IN A FUNCTIONAL CONDITION AT ALL TIMES.
- REMOVE SEDIMENTS COLLECTED AT THE BASE OF THE WATTLES WHEN THEY REACH 1/3 OF THE EXPOSED HEIGHT OF THE PRACTICE.
- WHERE THE WATTLE DETERIORATES OR FAILS, IT WILL BE REPAIRED OR REPLACED WITH A MORE EFFECTIVE ALTERNATIVE.
- REMOVAL – WATTLES WILL BE DISPERSED ON SITE WHEN NO LONGER REQUIRED IN SUCH AS WAY AS TO FACILITATE AND NOT OBSTRUCT SEEDINGS.

2 STRAW WATTLE
N.T.S.



NOTES:

- SUBGRADE FOR THE FILTER OR BEDDING AND RIPRAP SHALL BE PREPARED TO THE REQUIRED LINES AND GRADES AS SHOWN ON THE PLAN. THE SUBGRADE SHALL BE CLEARED OF ALL TREES, STUMPS, ROOTS, SOD, LOOSE ROCK, OR OTHER MATERIAL.
- RIPRAP SHALL CONFORM TO THE GRADING LIMITS AS SHOWN ON THE PLAN.
- GEOTEXTILE SHALL BE SECURELY ANCHORED ACCORDING TO MANUFACTURERS' RECOMMENDATIONS.
- GEOTEXTILE SHALL BE LAID WITH THE LONG DIMENSION PARALLEL TO THE DIRECTION OF FLOW AND SHALL BE LAID LOOSELY BUT WITHOUT WRINKLES AND CREASES. WHERE JOINTS ARE NECESSARY, STRIPS SHALL BE PLACED TO PROVIDE A 12-IN. MINIMUM OVERLAP, WITH THE UPSTREAM STRIP OVERLAPPING THE DOWNSTREAM STRIP.
- GRAVEL BEDDING SHALL BE ODOT NO. 67'S OR 57'S UNLESS SHOWN DIFFERENTLY ON THE DRAWINGS.
- RIPRAP MAY BE PLACED BY EQUIPMENT BUT SHALL BE PLACED IN A MANNER TO PREVENT SLIPPAGE OR DAMAGE TO THE GEOTEXTILE.
- RIPRAP SHALL BE PLACED BY A METHOD THAT DOES NOT CAUSE SEGREGATION OF SIZES. EXTENSIVE PUSHING WITH A DOZER CAUSES SEGREGATION AND SHALL BE AVOIDED BY DELIVERING RIPRAP NEAR ITS FINAL LOCATION WITHIN THE CHANNEL.
- CONSTRUCTION SHALL BE SEQUENCED SO THAT OUTLET PROTECTION IS PLACED AND FUNCTIONAL WHEN THE STORM DRAIN, CULVERT, OR OPEN CHANNEL ABOVE IT BECOMES OPERATIONAL.
- ALL DISTURBED AREAS WILL BE VEGETATED AS SOON AS PRACTICAL.

3 ROCK CHANNEL PROTECTION AT OUTLET
N.T.S.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

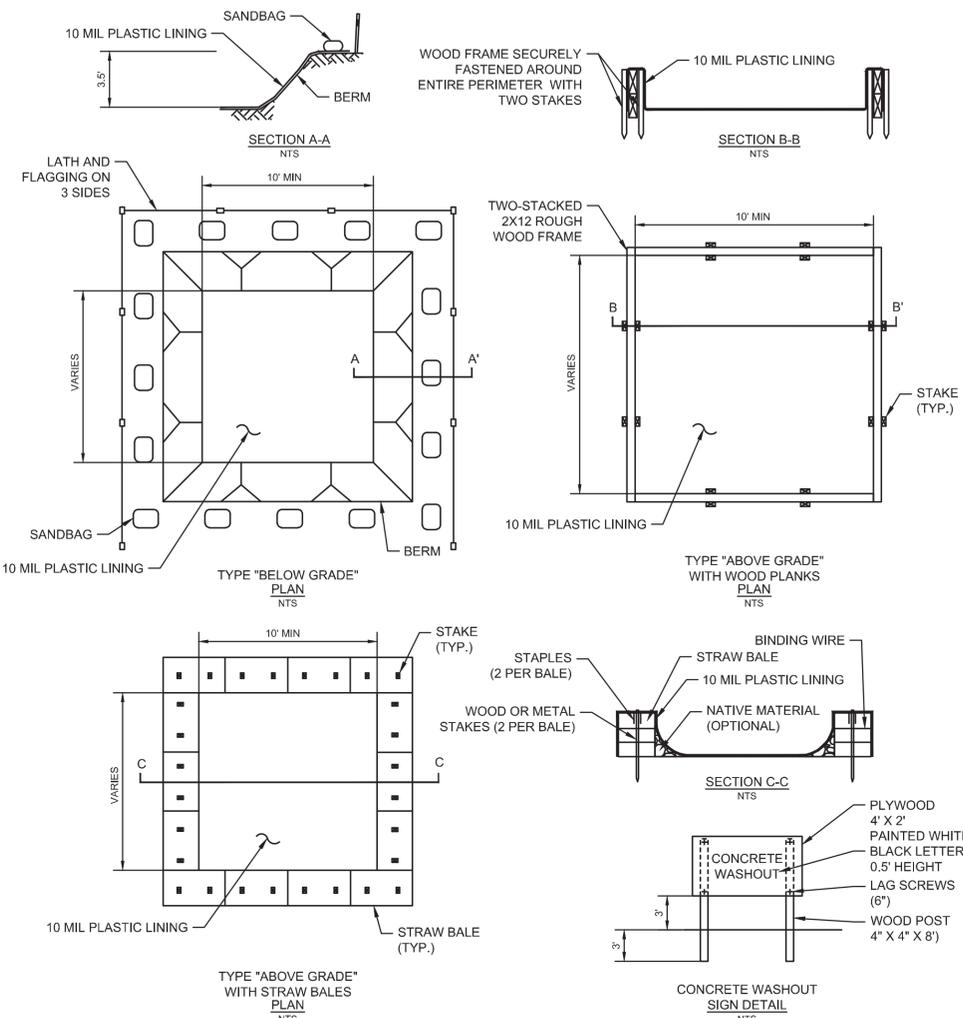
 CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
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 Westerville, OH 43082
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SCALE:
N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

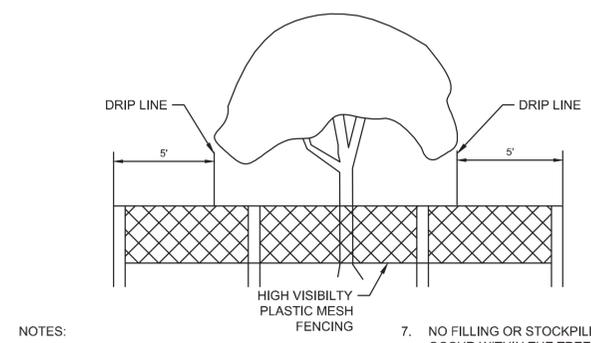
EROSION CONTROL DETAILS

APPROVED
2024-004



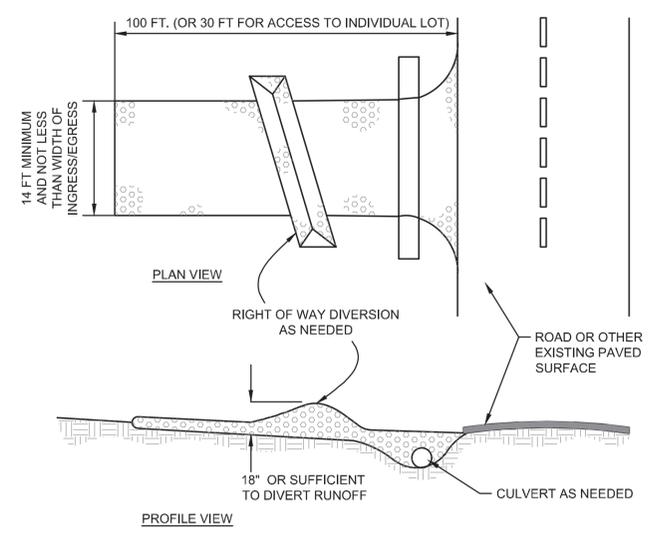
- NOTES:
- ACTUAL LAYOUT DETERMINED IN THE FIELD.
 - THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30' OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

1 CONCRETE WASHOUT
N.T.S.



- NOTES:
- PROTECT EXISTING TREES AND OTHER VEGETATION INDICATED TO REMAIN IN PLACE AGAINST UNNECESSARY CUTTING, BREAKING OR SKINNING OF ROOTS, SKINNING OR BRUISING OF BARK, SMOTHERING OF TREES BY STOCKPILING CONSTRUCTION MATERIALS OR EXCAVATED MATERIALS WITHIN DRIP LINE, EXCESS FOOT OR VEHICULAR TRAFFIC, OR PARKING OF VEHICLES WITHIN DRIP LINE. PROVIDE TEMPORARY GUARDS TO PROTECT TREES AND VEGETATION TO BE LEFT STANDING.
 - SIGNAGE SHALL CLEARLY IDENTIFY THE TREE AND NATURAL PRESERVATION AREA AND STATE THAT NO CLEARING OR EQUIPMENT IS ALLOWED WITHIN IT.
 - TREE AND NATURAL PRESERVATION AREA SHALL BE FENCED PRIOR TO BEGINNING CLEARING OPERATIONS.
 - FENCE MATERIALS SHALL BE METAL FENCE POSTS WITH SNOW FENCE.
 - FENCE SHALL BE PLACED AS SHOWN ON PLANS AND BEYOND THE DRIP LINE OR CANOPY OF TREES TO BE PROTECTED.
 - IF ANY CLEARING IS DONE AROUND SPECIMEN TREES IT SHALL BE DONE BY CUTTING AT GROUND LEVEL WITH HAND HELD TOOLS AND SHALL NOT BE GRUBBED OR PULLED OUT. NO CLEARING SHALL BE DONE IN BUFFER STRIPS OR OTHER PRESERVED FORESTED AREAS.
 - NO FILLING OR STOCKPILING OF MATERIALS SHALL OCCUR WITHIN THE TREE PROTECTION AREA, INCLUDING DEPOSITION OF SEDIMENT.
 - WHERE UTILITIES MUST RUN THROUGH A TREE'S DRIP LINE, TUNNELING SHOULD BE USED TO MINIMIZE ROOT DAMAGE. TUNNELING SHOULD BE AT A MINIMUM DEPTH OF 24 INCHES FOR TREES LESS THAN 12 INCHES IN DIAMETER OR AT A MINIMUM DEPTH OF 36 INCHES FOR LARGER DIAMETER TREES.
 - WHERE TUNNELING WILL BE PERFORMED WITHIN THE DRIP LINE OF A TREE, THE TUNNEL SHOULD BE PLACED A MINIMUM OF 2 FEET AWAY FROM THE TREE TRUNK TO AVOID TAPROOTS.
 - MINIMIZE EXCAVATION OR TRENCHING WITHIN THE DRIP LINE OF THE TREE. ROUTE TRENCHES AROUND THE DRIP LINE OF TREES.
 - ROOTS 2 INCHES OR LARGER THAT ARE SEVERED BY TRENCHING SHOULD BE SAWN OFF NEATLY IN ORDER TO ENCOURAGE NEW GROWTH AND DISCOURAGE DECAY.
 - SOIL EXCAVATED DURING TRENCHING SHALL BE PILED ON THE SIDE AWAY FROM THE TREE.
 - ROOTS SHALL BE KEPT MOIST WHILE TRENCHES ARE OPEN AND REFILLED IMMEDIATELY AFTER UTILITIES ARE INSTALLED OR REPAIRED.

2 TREE PROTECTION
N.T.S.



- NOTES:
- STONE SIZE - ODOT #2 (1.5-2.5 INCH) STONE SHALL BE USED, OR RECYCLED CONCRETE EQUIVALENT.
 - LENGTH - THE CONSTRUCTION ENTRANCE SHALL BE AS LONG AS REQUIRED TO STABILIZE HIGH TRAFFIC AREAS BUT NOT LESS THAN 70 FT. (EXCEPTION: APPLY 30 FT. MINIMUM TO SINGLE RESIDENCE LOTS).
 - THICKNESS - THE STONE LAYER SHALL BE AT LEAST 6 INCHES THICK FOR LIGHT DUTY ENTRANCES OR AT LEAST 10 INCHES FOR HEAVY DUTY USE.
 - WIDTH - THE ENTRANCE SHALL BE AT LEAST 14 FEET WIDE, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
 - GEOTEXTILE - A GEOTEXTILE SHALL BE LAID OVER THE ENTIRE AREA PRIOR TO PLACING STONE. IT SHALL BE COMPOSED OF STRONG ROT-PROOF POLYMERIC FIBERS AND MEET THE FOLLOWING SPECIFICATIONS:

MINIMUM TENSILE STRENGTH.....	200 LBS
MINIMUM PUNCTURE STRENGTH.....	80 LBS
MINIMUM TEAR STRENGTH.....	50 LBS
MINIMUM BURST STRENGTH.....	320 PSI
MINIMUM ELONGATION.....	20%
EQUIVALENT OPENING SIZE.....	EOS < 0.6MM
PERMITTIVITY.....	1X10 ³ CM/SEC
 - TIMING - THE CONSTRUCTION ENTRANCE SHALL BE INSTALLED AS SOON AS IS PRACTICABLE BEFORE MAJOR GRADING ACTIVITIES.
 - CULVERT - A PIPE OR CULVERT SHALL BE CONSTRUCTED UNDER THE ENTRANCE IF NEEDED TO PREVENT SURFACE WATER FROM FLOWING ACROSS THE ENTRANCE OR TO PREVENT RUNOFF FROM BEING DIRECTED OUT ONTO PAVED SURFACES.
 - WATER BAR - A WATER BAR SHALL BE CONSTRUCTED AS PART OF THE CONSTRUCTION ENTRANCE IF NEEDED TO PREVENT SURFACE RUNOFF FROM FLOWING THE LENGTH OF THE CONSTRUCTION ENTRANCE AND ON TO PAVED SURFACES.
 - MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOW OF MUD ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR THE WASHING AND REWORKING OF EXISTING STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY STRUCTURES USED TO TRAP SEDIMENT. ALL MATERIALS SPILLED, DROPPED, WASHED, OR TRACKED FROM VEHICLES ONTO ROADWAYS OR INTO STORM DRAINS MUST BE REMOVED IMMEDIATELY. THE USE OF WATER TRUCKS TO REMOVE MATERIALS DROPPED, WASHED, OR TRACKED ONTO ROADWAYS WILL NOT BE PERMITTED UNDER ANY CIRCUMSTANCES. TOP DRESSING OF ADDITIONAL STONE SHALL BE APPLIED AS CONDITIONS DEMAND. MUD SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC ROADS, OR ANY SURFACE WHERE RUNOFF IS NOT CHECKED BY SEDIMENT CONTROLS, SHALL BE REMOVE IMMEDIATELY. REMOVAL SHALL BE ACCOMPLISHED BY SCRAPING OR SWEEPING.
 - CONSTRUCTION ENTRANCES SHALL NOT BE RELIED UPON TO REMOVE MUD FROM VEHICLES AND PREVENT OFF-SITE TRACKING. VEHICLES THAT ENTER AND LEAVE THE CONSTRUCTION-SITE SHALL BE RESTRICTED FROM MUDDY AREAS.
 - REMOVAL - THE ENTRANCE SHALL REMAIN IN PLACE UNTIL THE DISTURBED AREA IS STABILIZED OR REPLACED WITH A PERMANENT ROADWAY OR ENTRANCE.

3 CONSTRUCTION ENTRANCE
N.T.S.

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

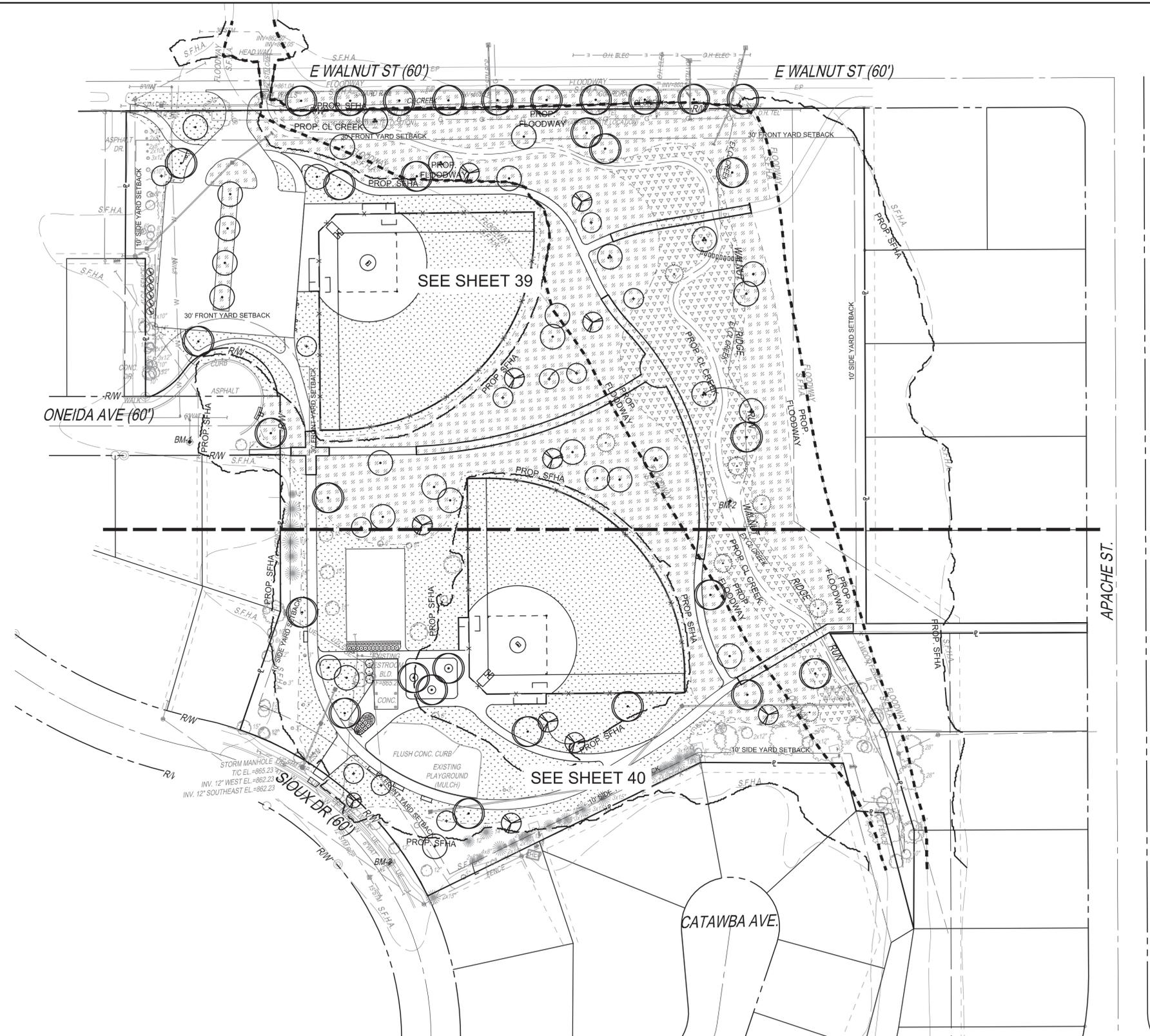
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SCALE:
 N.T.S.

WALNUT RIDGE PARK IMPROVEMENTS

EROSION CONTROL DETAILS

APPROVED
 2024-004



PLANTING NOTES

1. PRIOR TO INSTALLATION, THE LANDSCAPE CONTRACTOR SHALL INSPECT THE GENERAL SITE CONDITIONS AND VERIFY THE SUBGRADE, ELEVATIONS, UTILITY LOCATIONS AND TOPSOIL PROVIDED BY GENERAL CONTRACTOR. THE LANDSCAPE CONTRACTOR SHALL NOTIFY THE GENERAL CONTRACTOR OF ANY UNSATISFACTORY CONDITIONS AND WORK SHALL NOT PROCEED UNTIL SUCH CONDITIONS HAVE BEEN CORRECTED AND ARE ACCEPTABLE TO THE LANDSCAPE CONTRACTOR.
2. CONFIRM LOCATION OF ALL UTILITIES AND SUBSURFACE DRAIN LINES PRIOR TO PLANT INSTALLATION. SUBSURFACE IMPROVEMENTS SHALL BE OBSERVED. THE CONTRACTOR SHALL CONTACT THE OHIO UTILITIES PROTECTION SERVICE (OUPS) 48 HOURS PRIOR TO ANY EXCAVATION OR DIGGING TO ENSURE THE LOCATION OF UNDERGROUND UTILITIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROTECT SUCH UNDERGROUND UTILITIES.
3. CONTRACTOR SHALL REPAIR ALL LAWN AREAS DISTURBED DURING CONSTRUCTION WITH SEED AND WARRANT A HEALTHY, WEED FREE LAWN PRIOR TO PROJECT ACCEPTANCE. SEEDING SHALL NOT BEGIN UNTIL AREA HAS RECEIVED TOPSOIL AND FINISHED GRADE.
4. ANY ITEM OR AREAS DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED TO ITS ORIGINAL CONDITION AT THE CONTRACTOR'S EXPENSE.
5. MULCH PLANTING BEDS WITH TRIPLE SHREDDED HARDWOOD MULCH OF UNIFORM BROWN COLOR WITHOUT DYE. IT SHALL BE FREE OF TWIGS, LEAVES, DISEASE, PEST OR OTHER MATERIAL UNSIGHTLY OR INJURIOUS TO PLANTS. AVERAGE APPLIED THICKNESS SHALL BE 3" DEPTH. ALL SHRUB MASSES TO BE INCORPORATED BY A CONTINUOUS MULCH BED TO LIMITS SHOWN AND AS SPECIFIED.
6. ALL PLANTING BEDS CONTAINING SHRUBS, PERENNIALS, AND / OR ORNAMENTAL GRASSES SHALL BE COVERED WITH PRE-EMERGENT HERBICIDE APPLIED AT PRODUCT SPECIFIED RATE UNLESS OTHERWISE NOTED.
7. BED EDGE SHALL BE SMOOTH, CONSISTENT, HAND TRENCHED 6" DEEP AND "V" SHAPED UNLESS OTHERWISE NOTED. ALL EXCAVATED MATERIAL SHALL BE REMOVED FROM THE BED EDGE AND PLANTING BED. ALL PLANTING BED EDGES SHALL BE SMOOTH FLOWING ARCS OR STRAIGHT LINES AS SHOWN ON PLAN. LAYOUT OF PLANTS AND PLANTING BEDS SHALL BE LOCATED BY CONTRACTOR AND APPROVED BY CITY PRIOR TO PLANTING.
8. PLANTING BEDS, INCLUDING MULCH, SHALL BE FLUSH WITH ADJACENT GRADE. FINISHED PLANTING BEDS SHALL BE GRADED TO PROVIDE POSITIVE DRAINAGE.
9. NOTIFY OWNER IF SUBSOIL OR SUBGRADE CONDITIONS EVIDENCE UNEXPECTED WATER SEEPAGE OR RETENTION IN TREE OR SHRUB PLANTING PITS.
10. CONTRACTOR SHALL DETERMINE PLANT LIST QUANTITIES FROM THE PLAN. GRAPHIC REPRESENTATION ON PLAN SUPERSEDES IN CASE OF DISCREPANCY WITH QUANTITIES ON GENERAL SUMMARY.
11. ALL PLANT MATERIAL SHALL BE OF THE SIZE AND TYPE SPECIFIED. IF SUBSTITUTIONS ARE APPROVED BY THE OWNER'S REPRESENTATIVE, THE SIZE AND GRADING STANDARDS SHALL CONFORM TO THOSE OF THE AMERICAN ASSOCIATION OF NURSERYMEN. LIMIT SOURCES OF PLANTS TO THE STATES OF OHIO, PENNSYLVANIA, KENTUCKY, WEST VIRGINIA, ILLINOIS, INDIANA, NEW YORK AND MICHIGAN AND TO USDA ZONES 5A, 5B AND 6A.
12. ALL LAYOUT, EXCAVATION, BED PREPARATION, BED EDGING, ROOT BALL PREPARATION, PLANTING MIX, MULCH, STAKING, STAKE REMOVAL, REPAIR SODDING, WEEDING AND MAINTENANCE DURING THE ESTABLISHMENT PERIOD, REPAIR SODDING AND MULCHING, AND ANY OTHER APPURTENANCES OR MISCELLANEOUS WORK REQUIRED FOR A COMPLETE PLANTING INSTALLATION SHALL BE INCLUDED IN THE UNIT PRICE BID FOR EACH PLANT. NO SEPARATE PAYMENTS WILL BE MADE.
13. INSTALL EROSION-CONTROL MEASURES PER ITEM 659 - SEEDING AND MULCHING, AS PER PLAN.

WESTERVILLE, OHIO LANDSCAPE ZONING REQUIREMENTS (SECTION 1173)

	REQUIRED	PROPOSED
TREE REPLACEMENT		
REPLACE MAJOR TREES REMOVED (6" CALIPER OR GREATER)	MAJOR TREES WITH TRUNK DIAMETER: 6" - 11"; REPLACE ON A 1:1 BASIS: 18 REMOVED = 18 REPLACED 12" - 17"; REPLACE ON A 2:1 BASIS: 14 REMOVED = 28 REPLACED 18" - 23"; REPLACE ON A 3:1 BASIS: 5 REMOVED = 15 REPLACED 24" - 29"; REPLACE ON A 4:1 BASIS: 0 REMOVED >30"; REPLACE ON A 5:1 BASIS: 4 REMOVED = 20 REPLACED	81 DECIDUOUS REPLACEMENT TREES (2" CALIPER MIN.)
PARKING LOT		
INTERIOR LANDSCAPING	FOR PARKING AREAS BETWEEN 15,000 - 29,999 SF, PROVIDE LANDSCAPE AREA EQUAL TO 7.5% OF THE PARKING AREAS SF	3,205 SF OF LANDSCAPE AREA
TREES	21,644 SF PARKING AREA = 1,624 SF OF LANDSCAPE AREA 1 DECIDUOUS TREE (3" CALIPER MIN.) SHALL BE REQUIRED FOR EVERY 3,000 SF OF PARKING AREA OR FOR EVERY 10 PARKING SPACES	6 TREES (2" CALIPER MIN.)
	59 PARKING SPACES = 6 TREES	

LEGEND

- PROPERTY LINE
- SEEDING AND MULCHING, AS PER PLANS (TURFGRASS SEEDING)
- SEEDING AND MULCHING, AS PER PLANS (MEADOW MIX, TYP 1)
- SEEDING AND MULCHING, AS PER PLANS (MEADOW MIX, TYP 2)
- DECIDUOUS TREE, TYP. 8-10
41
- EVERGREEN TREE, TYP. 6-7
41
- SHRUBS, PERENNIALS & ORNAMENTAL GRASSES, TYP. 2-5
41
- DECIDUOUS TREE, OWNER FURNISHED AND INSTALLED 8-10
41
- EXISTING TREES TO REMAIN, PROTECT IN PLACE

REVISIONS	
MARK	DATE

PLANS PREPARED BY:

 CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
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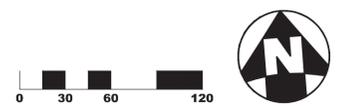
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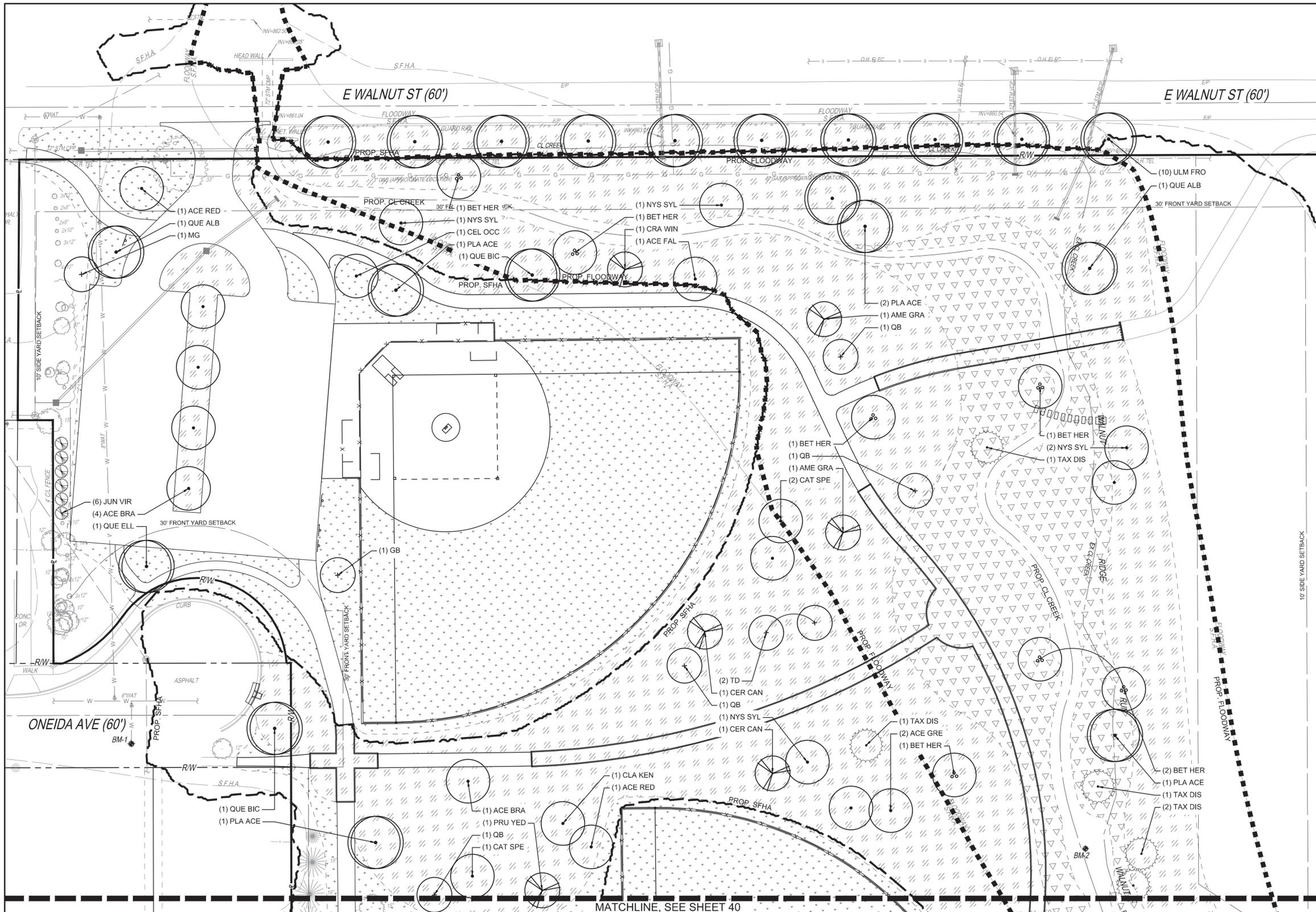
WALNUT RIDGE PARK IMPROVEMENTS

OVERALL PLANTING PLAN

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2024-004

38
41

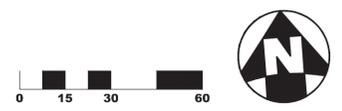




NOTES
 1. SEE SHEET 41 FOR PLANT SCHEDULE AND PLANTING DETAILS.

LEGEND

- PROPERTY LINE
- SEEDING AND MULCHING, AS PER PLANS (TURFGRASS SEEDING)
- SEEDING AND MULCHING, AS PER PLANS (MEADOW MIX, TYP 1)
- SEEDING AND MULCHING, AS PER PLANS (MEADOW MIX, TYP 2)
- DECIDUOUS TREE, TYP. 8-10
41
- EVERGREEN TREE, TYP. 6-7
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- SHRUBS, PERENNIALS & ORNAMENTAL GRASSES, TYP. 2-5
41
- DECIDUOUS TREE, OWNER FURNISHED AND INSTALLED 8-10
41
- EXISTING TREES TO REMAIN, PROTECT IN PLACE



REVISIONS		
MARK	DATE	DESCRIPTION

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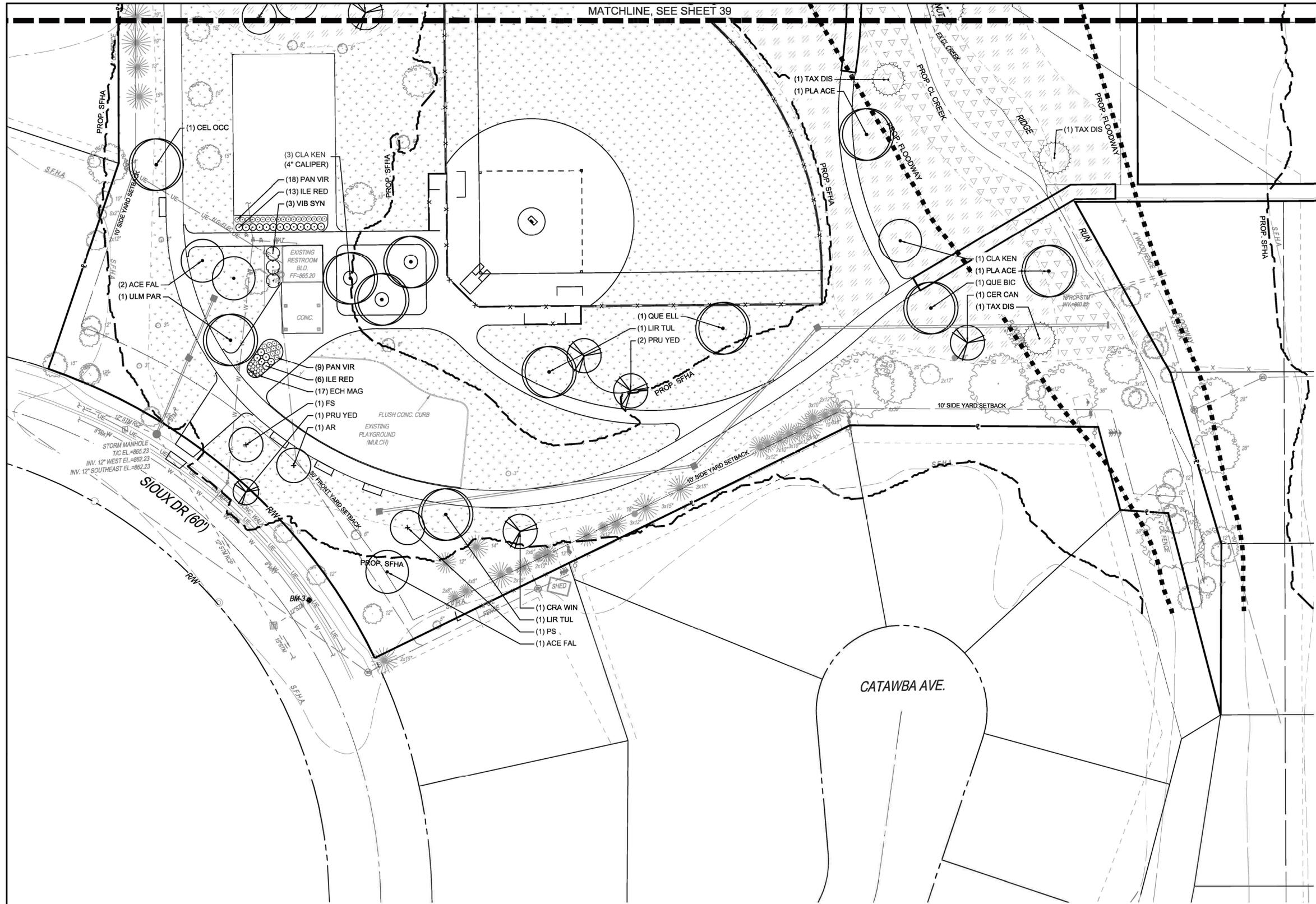
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WALNUT RIDGE PARK IMPROVEMENTS

PLANTING PLAN - NORTH

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 2024-004

39
 41



NOTES
 1. SEE SHEET 41 FOR PLANT SCHEDULE AND PLANTING DETAILS.

LEGEND

- PROPERTY LINE
- SEEDING AND MULCHING, AS PER PLANS (TURFGRASS SEEDING)
- SEEDING AND MULCHING, AS PER PLANS (MEADOW MIX, TYP 1)
- SEEDING AND MULCHING, AS PER PLANS (MEADOW MIX, TYP 2)
- DECIDUOUS TREE, TYP. 8-10
41
- EVERGREEN TREE, TYP. 6-7
41
- SHRUBS, PERENNIALS & ORNAMENTAL GRASSES, TYP. 2-6
41
- DECIDUOUS TREE, OWNER FURNISHED AND INSTALLED 8-10
41
- EXISTING TREES TO REMAIN, PROTECT IN PLACE

REVISIONS		
MARK	DATE	DESCRIPTION

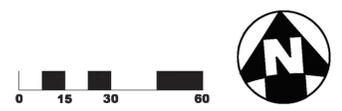
PLANS PREPARED BY:
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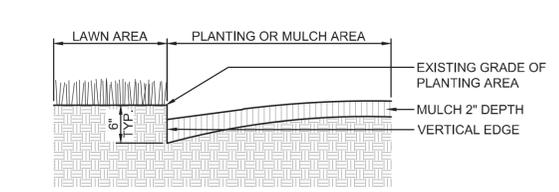
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WALNUT RIDGE PARK IMPROVEMENTS

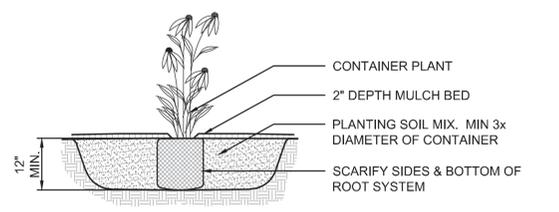
PLANTING PLAN - SOUTH

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 2024-004

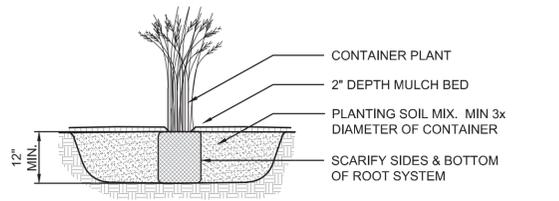




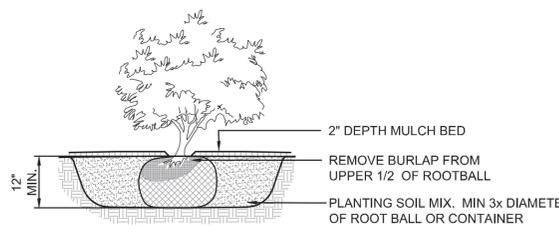
1 PLANTING BED / TREE PIT EDGING DETAIL
N.T.S.



2 PERENNIAL PLANTING
N.T.S.



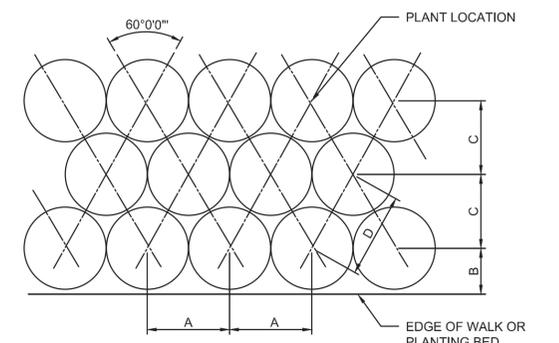
3 ORNAMENTAL GRASS PLANTING
N.T.S.



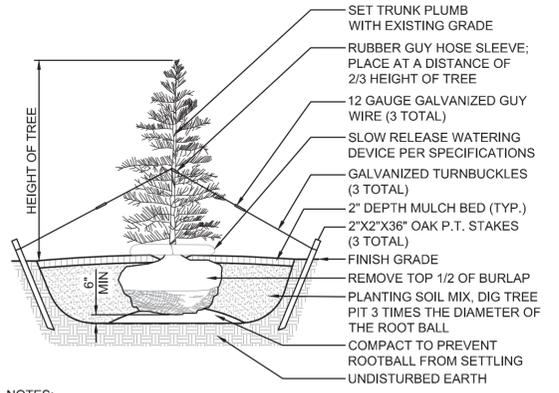
4 SHRUB PLANTING
N.T.S.

SPACING	A	B	C	D
12"	12"	6"	10"	12"
18"	18"	8"	15"	18"
24"	24"	10"	20"	24"
30"	30"	15"	25"	30"
36"	36"	18"	31"	36"
48"	48"	21"	41"	48"

A = SPACING
B = SP/2
C = SP/1.2
D = SPACING

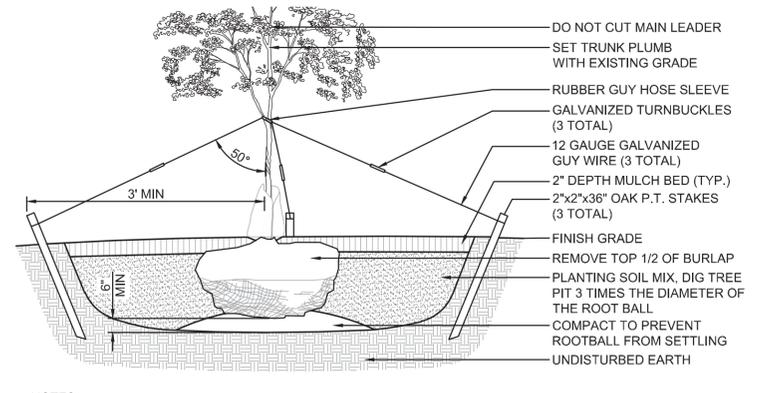


5 PLANT SPACING
N.T.S.



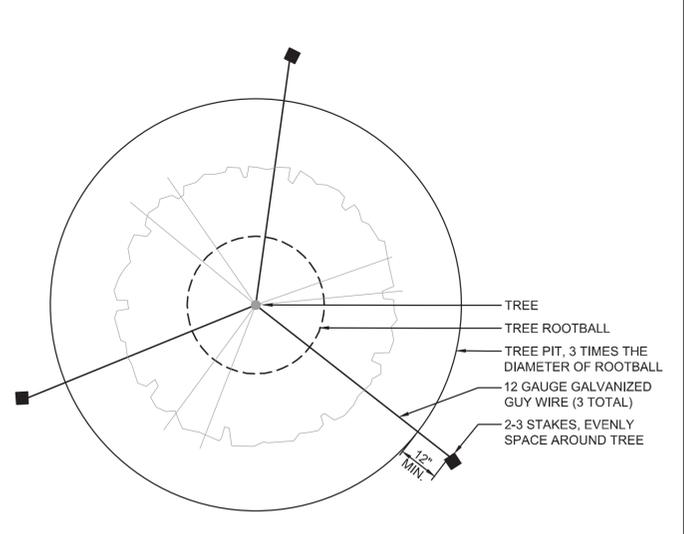
NOTES:
1. TOP OF ROOT BALL TO BE 2"-3" ABOVE ADJACENT FINISHED GRADE.
2. REMOVE ALL LABELS, TAGS, OR OTHER FOREIGN MATERIALS FROM LIMBS.
3. REMOVE GUY WIRES, TURNBUCKLES, HOSE AND STAKES 1 YEAR AFTER PLANTING.
4. THE AMOUNT OF PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS AND BRANCHES AND TO COMPENSATE FOR THE LOSS OF ROOTS DURING TRANSPLANTING. RETAIN NORMAL SHAPE OF TREE. OWNER'S REPRESENTATIVE WILL DETERMINE AMOUNT OF PRUNING NECESSARY. PLANT TREES AT SAME GRADE AS GROWN IN THE NURSERY.

6 EVERGREEN TREE PLANTING WITH WATERING DEVICE
N.T.S.

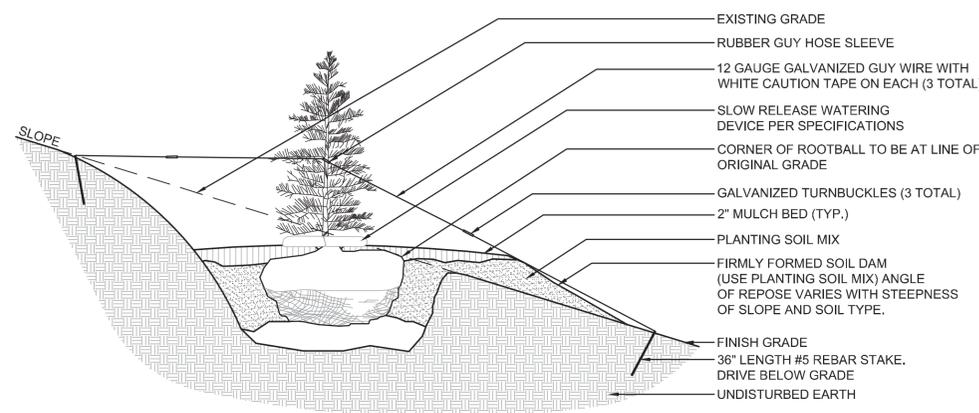


NOTES:
1. TOP OF ROOT BALL TO BE 2"-3" ABOVE ADJACENT FINISHED GRADE.
2. REMOVE ALL LABELS, TAGS, OR OTHER FOREIGN MATERIALS FROM LIMBS.
3. REMOVE GUY WIRES, TURNBUCKLES, HOSE AND STAKES 1 YEAR AFTER PLANTING.
4. THE AMOUNT OF PRUNING SHALL BE LIMITED TO THE MINIMUM NECESSARY TO REMOVE DEAD OR INJURED TWIGS AND BRANCHES AND TO COMPENSATE FOR THE LOSS OF ROOTS DURING TRANSPLANTING. RETAIN NORMAL SHAPE OF TREE. OWNER'S REPRESENTATIVE WILL DETERMINE AMOUNT OF PRUNING NECESSARY. PLANT TREES AT SAME GRADE AS GROWN IN THE NURSERY.

9 DECIDUOUS TREE PLANTING WITH WATERING DEVICE
N.T.S.

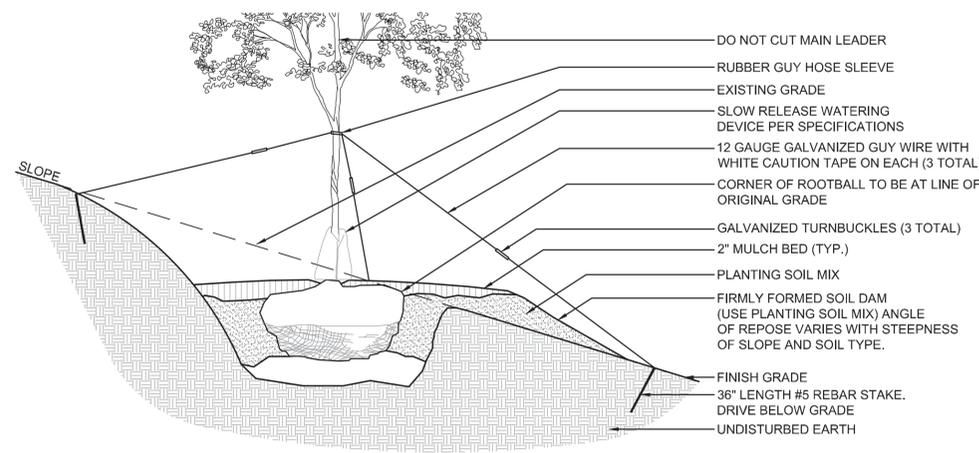


10 TREE STAKING - PLAN VIEW
N.T.S.



NOTES:
1. FOR PLANTING INSTRUCTIONS SEE EVERGREEN TREE PLANTING DETAIL, THIS SHEET.

7 EVERGREEN TREE PLANTING ON A SLOPE WITH WATERING DEVICE
N.T.S.



NOTES:
1. FOR PLANTING INSTRUCTIONS SEE DECIDUOUS TREE PLANTING DETAIL, THIS SHEET.

8 DECIDUOUS TREE PLANTING ON A SLOPE WITH WATERING DEVICE
N.T.S.

QTY.	KEY	BOTANICAL NAME	COMMON NAME	SIZE	ROOT	REMARKS
DECIDUOUS TREES:						
5	ACE BRA	ACER RUBRUM 'BRANDYWINE'	BRANDYWINE MAPLE	2" CAL. MIN.	B&B	
2	ACE RED	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	2" CAL. MIN.	B&B	
4	ACE FAL	ACER SACCHARUM 'FALL FIESTA'	FALL FIESTA SUGAR MAPLE	2" CAL. MIN.	B&B	
2	ACE GRE	ACER SACCHARUM 'GREEN MOUNTAIN'	GREEN MOUNTAIN SUGAR MAPLE	2" CAL. MIN.	B&B	
2	AME GRA	AMELANCHIER x GRANDIFOLIA 'AUTUMN BRILLIANCE'	AUTUMN BRILLIANCE SERVICEBERRY	7' HT. MIN.	B&B	MULTI-STEM
7	BET HER	BETULA NIGRA 'HERITAGE'	HERITAGE RIVER BIRCH	12' HT. MIN.	B&B	MULTI-STEM
3	CAT SPE	CATALPA SPECIOSA	HEARTLAND CATALPA	2" CAL. MIN.	B&B	
2	CEL OCC	CELTIS OCCIDENTALIS	AMERICAN HACKBERRY	2" CAL. MIN.	B&B	
3	CER CAN	CERCIS CANADENSIS	REDBUD	2" CAL. MIN.	B&B	
2	CLA KEN	CLADRASTIS KENTUKEA	YELLOWWOOD	2" CAL. MIN.	B&B	
2	CRA WIN	CRATAEGUS VIRIDIS 'WINTER KING'	WINTER KING HAWTHORN	2" CAL. MIN.	B&B	
2	LIR TUL	LIRIODENDRON TULIPIFERA	TULIP TREE	2" CAL. MIN.	B&B	
5	NYS SYL	NYSSA SYLVATICA	BLACK TUPELO	2" CAL. MIN.	B&B	
7	PLA ACE	PLATANUS x ACERIFOLIA	LONDON PLANETREE	2" CAL. MIN.	B&B	
4	PRU YED	PRUNUS x YEDOESIS	YOSHINO CHERRY	2" CAL. MIN.	B&B	
2	QUE ALB	QUERCUS ALBA	WHITE OAK	2" CAL. MIN.	B&B	
3	QUE BIC	QUERCUS BICOLOR	SWAMP WHITE OAK	2" CAL. MIN.	B&B	
2	QUE ELL	QUERCUS ELLIPSOIDALIS	NORTHERN PIN OAK	2" CAL. MIN.	B&B	
8	TAX DIS	TAXODIUM DISTICHUM	BALD CYPRESS	2" CAL. MIN.	B&B	
10	ULM FRO	ULMUS FRONTIER	FRONTIER ELM	2" CAL. MIN.	B&B	
3	CLA KEN	CLADRASTIS KENTUKEA	AMERICAN YELLOWWOOD	4" CAL. MIN.	B&B	
EVERGREEN TREES:						
6	JUN VIR	JUNIPERUS VIRGINIANA 'BURKII'	BURK JUNIPER	6' HT. MIN.	B&B	
SHRUBS:						
19	ILE RED	ILEX VERTICILLATA 'RED SPRITE'	RED SPRITE WINTERBERRY	18" HT. MIN.	CONT.	PLANT 4' O.C.
3	VIB SYN	VIBURNUM DENTATUM 'SYNNESTVEDT'	CHICAGO LUSTRE ARROWWOOD VIBURNUM	24" HT. MIN.	B&B	PLANT 8' O.C.
PERENNIALS AND ORNAMENTAL GRASSES:						
27	PAN VIR	PANICUM VIRGATUM	SWITCHGRASS	#2	CONT.	PLANT 36" O.C.
17	ECH MAG	ECHINACEA PURPUREA 'MAGNUS'	MAGNUS PURPLE CONEFLOWER	#2	CONT.	PLANT 24" O.C.
TURFGRASS SEED: SEE SPECIFICATIONS						

QTY.	KEY	BOTANICAL NAME	COMMON NAME
DECIDUOUS TREES:			
1	AR	ACER RUBRUM	RED MAPLE
1	FS	FAGUS SYLVATICA	EUROPEAN BEECH
1	GB	GINKGO BILOBA	GINKGO
1	MG	METASEQUOIA GLYPTOSTROBODES	DAWN REDWOOD
1	PS	PRUNUS SPECIES	CHERRY
4	QB	QUERCUS BICOLOR	SWAMP WHITE OAK
2	TD	TAXODIUM DISTICHUM	BALD CYPRESS

REVISIONS		
MARK	DATE	DESCRIPTION

PLANS PREPARED BY:

 CIVIL ENGINEERING SURVEYING LANDSCAPE ARCHITECTURE
 www.kleingers.com
 350 Worthington Rd
 Suite 11
 Westerville, OH 43082
 614.882.4311

SCALE:
 AS SHOWN

WALNUT RIDGE PARK IMPROVEMENTS

PLANTING DETAILS

APPROVED
 2024-004
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